$ 7.50

TROY-BILT®

Owner/Operator Manual

TUFFY® Tiller

- Safety
- Assembly
- Controls
- Operation
- Maintenance

Models

12060
12065

TABLE OF CONTENTS

Tiller Serial Number Information 2

For Engine Service 3

Questions or Problems? 3

SECTION 1: SAFETY INSTRUCTIONS 4-5
- Training 4
- Preparation 4
- Operation 4
- Maintenance & Storage 5
- Decals 5

SECTION 2: EASY ASSEMBLY 6-9

SECTION 3: TILLER AND ENGINE CONTROLS 10
- Wheel Drive Pins 10
- Forward Clutch Bail 11
- Depth Regulator Lever 11
- Handlebar Height Adjustment 12
- Engine Controls 12
  - Engine Throttle Lever 12
  - Engine Choke Lever 13
  - Engine Recoil Starter 13

SECTION 4: OPERATING INSTRUCTIONS 14
- Break-in Operation 14
- Pre-start Checklist 14
- Starting the Engine 14
- Stopping the Engine 15
- Tilling 15
- Moving the Tiller Rearward 15
- Turning the Tiller Around 16
- Tilling in the Garden 16
- Tilling Depths 16
- Seedbed Preparation 17
- Avoid Making Footprints 17
- Cultivating 17
- Power Composting 18
- "Extra Traction" Frame Weights 18
- Preventing Tines from Becoming Tangled 18

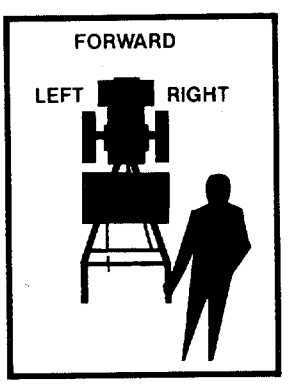
SECTION 4: OPERATING INSTRUCTIONS (cont.)
- Tilling Slopes 19
- Terrace Gardening 19
- Loading and Unloading the Tiller 20

SECTION 5: TILLER AND ENGINE MAINTENANCE ... 21
- Lubrication 21
- Checking Engine Oil Level and Adding Engine Oil 22
- Changing Engine Oil 22
- Checking, Adding, and Changing Transmission Gear Oil 23
- Checking for Oil Leaks 25
- Air Cleaner Maintenance 25
- Engine Cooling System Maintenance 25
- Engine Ignition System Maintenance 25
- Spark Plug Maintenance 25
- Carburetor Adjustments 26
- Tightening Nuts, Bolts, and Screws 26
- Bolo Tines 26
  - Removing and Installing the Tine Assemblies 26
  - Removing Individual Tines 26
  - Installing Tines 27
- Checking and Adjusting the Belt Tension 27
- Belt Removal and Replacement 28
- Forward Clutch (Bail) Adjustment 29
- Removing and Installing the Forward Clutch Cable 29
- Tiller Storage 30

Recommended Maintenance Intervals 31

Specifications 32

Alphabetical Index ..... Inside Rear Cover



IMPORTANT

All references to LEFT and RIGHT sides of the tiller are given from the operator's position behind the handlebars (unless specified otherwise).

Dear Owner:

Congratulations! You now own one of the finest rear-tine tillers available. The TROY-BILT® TUFFY®, along with the other TROY-BILT tiller models in the lineup, make up the finest family of tillers available to gardeners today.

Your new TUFFY® tiller, because of its rugged build, ease of operation, and maneuverability will give you years of gardening pleasure if cared for properly.

To help you get the most value from your new tiller, we've prepared this Owner/Operator Manual for your use. This Manual contains Safety Instructions, Assembly Steps, Operating Instructions, and much helpful information that will show you how to use your TUFFY® tiller the best possible way.

Please read this entire Owner/Operator Manual before you begin to operate your tiller. Practice using the controls on your tiller before starting the engine. After becoming familiar with the location and operation of the controls, move your tiller to a safe, level area to start the engine and familiarize yourself with how the tiller operates. Only after you've become completely familiar with your tiller should you take it into the garden and till with it.

Before you start your garden, read and pay careful attention to the gardening ideas given in Section 4. Keeping these ideas in mind when you lay out your garden will allow you to use your TUFFY® tiller to its fullest potential.

By following the preventative maintenance given in the first few pages of Section 5 (lubrication, checking and changing oil at regular intervals, keeping correct tension on the belt, and replacing the air filter element when it's too dirty) you can help to keep your TUFFY® tiller running properly for many years.

Of course if you should **ever** have any questions, please call us or write to us. Our phone numbers and addresses are on Page 3 and on the back cover of this Manual. One of our friendly, helpful tiller experts will gladly help you with any questions or problems you may have.

Always remember, we want to make sure that you are completely satisfied at all times.

Sincerely,

Dean Leith, Jr.

Dean Leith, Jr.
Sales Manager

IMPORTANT!

If you notice any freight damage or missing parts either at the time of delivery or later during assembly, make sure that you notify the truck terminal that you intend to file a claim. If you have any problems with this procedure, please call us so that we can help you get satisfaction. Our phone numbers are on Page 3 and on the back cover of this Manual.

⚠ CAUTION

TO AVOID INJURY:

- **READ THE OWNER/OPERATOR MANUAL.**
- **KNOW LOCATION AND FUNCTIONS OF ALL CONTROLS.**
- **KEEP ALL SAFETY DEVICES AND SHIELDS IN PLACE.**
- **NEVER ALLOW CHILDREN OR UNINSTRUCTED ADULTS TO OPERATE TILLER.**
- **SHUT OFF ENGINE AND DISCONNECT SPARK PLUG WIRE BEFORE UNCLOGGING TINES OR MAKING REPAIRS.**
- **KEEP BYSTANDERS AWAY FROM MACHINE.**
- **KEEP AWAY FROM ROTATING PARTS.**

⚠ WARNING TO ALL CALIFORNIA AND OTHER POWER EQUIPMENT OPERATORS

Under California Law, and the laws of several other states, you are not permitted to operate an internal combustion engine using hydrocarbon fuels on any forest covered, brush covered, or grass covered land, or on land covered with grain, hay, or other flammable agricultural crop, without an engine spark arrester in continuous effective working order.

The engine on your power equipment, like most outdoor power equipment, is an internal combustion engine that burns gasoline, a hydrocarbon fuel. Therefore your power equipment must be equipped with a spark arrester muffler in continuous effective working order. The spark arrester must be attached to the engine exhaust system in such a manner that flames or heat from the system will not ignite flammable material. Failure of the owner/operator of the equipment to comply with this regulation is a misdemeanor under California law, and may also be a violation of other state and/or federal regulations, laws, ordinances, or codes. Contact your local fire marshall or forest service for specific information about what regulations apply in your area. Contact your local engine dealer for information about obtaining a spark arrester.

IMPORTANT

The TROY-BILT® TUFFY™ tiller meets voluntary safety standard B71.8-1986, which is sponsored by the Outdoor Power Equipment Institute, Inc. and is published by the American National Standards Institute, Inc.

So that we can help you as quickly as possible when you call or write for service assistance or parts, we will need to know your tiller's model name and serial number.

The arrow in the photo to the right shows you where your tiller's serial number is located. For your convenience and ready reference, please write the tiller serial number and date of delivery in the spaces below.

My tiller is a:

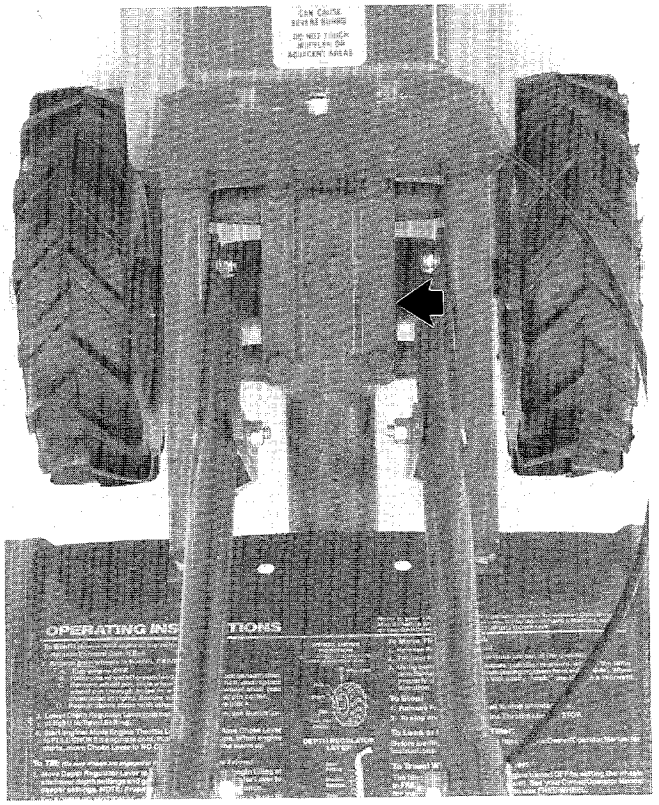
TUFFY™ Model _____

My tiller's serial number is:

_____

The date of delivery was:

_____



For Engine Service

If your tiller's engine should ever need service, repair, or parts, please contact your nearest Authorized Tecumseh Service Outlet.

To find the name of the nearest outlet, look under "Engines — Gasoline" in the Yellow Pages of your telephone book.

If you should have any problems obtaining engine service, repair, or parts locally, call us and we will provide you with the name of the nearest Authorized Tecumseh Service Outlet.

You'll need to provide the service outlet with the Model Number of the engine. This number is stamped on the top of the engine cooling shroud (above the recoil start housing and in front of the spark plug). Please write the model number below so that you will have it ready for future reference.

My tiller has a:

Tecumseh engine

_____

The engine's model number is:

_____

QUESTIONS OR PROBLEMS?

1. Check the Owner/Operator Manual:

The answer to your question or problem may be right here in this Manual. Refer to the Index on the inside back cover to find the listing regarding your problem. Turn to that page and read that section. (For a free replacement Owner/Operator Manual, call us at the numbers listed below.)

2. Call us or write to us:

If you cannot find the answer to your question or problem in this Manual, please call us or write to us. One of our helpful, friendly tiller experts will be glad to help you. When you call or write, be sure to let us know which tiller model (TUFFY™ model) you own and what the tiller's serial number is.

3. If you need a part:

Call or write to our PARTS DEPARTMENT. Please let them know what tiller model (TUFFY™ model) you own and what the tiller's serial number is.

Use your TUFFY™ Model Parts Catalog to find the part number, description, and quantity of the part you need. Remember that many of the common hardware items (bolts, nuts, screws, etc.) can be purchased at your local hardware store as well as being available from Garden Way.

Of course, if you have any questions about which part you need, please call us or write to us for assistance.

HOW TO REACH US

Hours		Address		Telephone Numbers	
U.S.A.	**Canada**	**U.S.A.**	**Canada**	**U.S.A.**	**Canada**
M-F, 8 a.m. to 7 p.m. Sat. 9 a.m. to 4 p.m.	M-F, 8 a.m. to 5:00 p.m.	GARDEN WAY INCORPORATED 102nd St. & 9th Ave. Troy, N.Y. 12180	GARDEN WAY INCORPORATED 320 Van Sickle Rd., Unit 12, St. Catherines, Ontario L2R 6P7	(Toll Free) For Technical Service: 1-800-520-5520 For Parts Service: 1-800-648-6776 International Calls: 518-391-7000	(Toll Free) For Technical Service and Parts Service: 1-800-225-3585

SECTION 1: SAFETY INSTRUCTIONS

The TROY-BILT® TUFFY™ Tiller has been designed with many safety features. However, as with any other type of powered equipment, the operator must follow safe operating practices at all times. Failure to follow these Safety Instructions could result in personal injury or damage to equipment or property.

Before assembling, operating, or servicing the tiller or its engine, carefully read and follow all of the Safety Instructions found in this Owner/Operator Manual, in the separate Engine Owner's Manual, and in any other literature you may receive. If you ever have any questions, please call us at one of the numbers listed on Page 3 and on the back cover of this Manual.

If you ever lend your tiller to another person, make sure that he or she reads, understands, and always follows these Safety Instructions.

Please, always use your tiller carefully and keep all Safety Instructions in mind.

SAFETY ALERT SYMBOL. This symbol is used to alert you to important safety messages in this Manual and on decals which are on the tiller. When you see this symbol, read and carefully follow its message. Failure to do so could result in personal injury or property damage.

TRAINING

1. Carefully read this Owner/Operator Manual, the separate Engine Owner's Manual, and any other literature you may receive. Be thoroughly familiar with the controls and the proper use of the tiller and its engine. Know how to stop the tiller and disengage the controls quickly.
2. Never allow children to operate the tiller. Never allow adults to operate the tiller without proper instructions.
3. Keep the area of operation clear of all persons (particularly small children) and pets.

PREPARATION

1. Thoroughly inspect the area where the tiller is to be used and remove all foreign objects.
2. Make sure that all control levers are released and that both wheels are in their WHEEL DRIVE position before starting the engine.
3. Do not operate the tiller without wearing adequate outer garments. Avoid loose garments or jewelry that could get caught in moving parts of the tiller or its engine.
4. Do not operate the tiller when barefoot or when wearing sandals, sneakers, or similar lightweight footwear. Wear footwear which will protect your feet and improve footing on slippery surfaces.
5. Do not till near underground electric cables, telephone lines, pipes, or hoses. If in doubt, contact your telephone or utility company to locate underground services.
6. Handle fuel with care; it is highly flammable and its vapors are explosive.
   a. Use an approved fuel container.
   b. Gas cap shall never be removed or fuel added while engine is running.
   c. Keep matches, cigarettes, cigars, pipes, open flames, and sparks away from the fuel tank and fuel container.
   d. Fill the fuel tank outdoors with extreme care. Never fill the fuel tank indoors. Use a funnel or spout to prevent spilling.
   e. Replace the fuel tank cap securely and clean up any spilled fuel before starting the engine.
7. Before tilling, check the operation of all controls to make sure that they are functioning properly.

OPERATION

1. Do not put hands or feet near or under rotating parts.
2. Exercise extreme caution when operating on, or when crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
3. After striking a foreign object, stop the engine, disconnect the spark plug wire and prevent it from touching the spark plug, thoroughly inspect the tiller for any damage, and repair the damage before restarting and operating the tiller.
4. Exercise caution to avoid slipping or falling.
5. If the machine should start to vibrate abnormally, stop the engine. Disconnect the spark plug wire, and check immediately for the cause. Vibration is generally a warning for trouble.
6. Stop the engine, disconnect the spark plug wire and prevent it from touching the spark plug when-

ever you leave the operating position, before unclogging the tines, and when making any repairs, adjustments, or inspections.

7. Take all possible precautions when leaving the tiller unattended. Stop the engine, disconnect the spark plug wire and prevent it from touching the spark plug. Make sure that both wheels are in the WHEEL DRIVE position.

8. Before cleaning, repairing, or inspecting, stop the engine and make certain that all moving parts have stopped. Disconnect the spark plug wire and prevent it from touching the spark plug to prevent accidental starting.

9. Always keep the flap on the tine hood down when operating the tiller.

10. Never operate the tiller without proper guards, plates, or other safety protective devices in place.

11. Do not run the engine in an enclosed area. Engine exhaust contains carbon monoxide gas, a deadly poison that is odorless, colorless, and tasteless.

12. Keep children and pets away.

13. Never operate the tiller under engine power if the wheels are in their FREE WHEEL position. In this position the wheels will not hold the tiller back and the revolving tines could propel the tiller rapidly, possibly causing loss of control. Always make sure that both wheels are in the WHEEL DRIVE position before starting the engine or engaging the tines/wheels with the Forward Clutch Bail.

14. Be aware that the tiller may unexpectedly bounce upward or jump forward if the tines should strike hardpacked soil, frozen ground, or buried obstacles such as large stones, roots, or stumps. If you are in doubt about the tilling conditions, always use the following operating precautions to assist you in maintaining control of the tiller:

a. Walk behind and to one side of the tiller, using one hand on the handlebars. Relax your arm, but use a secure hand grip.
b. Use shallower Depth Regulator settings, working down gradually deeper with each tilling pass.
c. Use slower engine speeds.
d. Clear the tilling area of all large stones, roots, and other debris.
e. Avoid applying downward pressure on the handlebars.
f. Before contacting hardpacked soil at the end of a row, lift the handlebars to raise the tines out of the soil.
g. In an emergency, stop the tines/wheels by releasing the Forward Clutch Bail. Do not attempt to restrain the tiller.

15. Do not overload the tiller's capacity by attempting to till too deep at too fast a rate.

16. Never operate the tiller at high transport speeds on slippery surfaces. Look behind and use care when backing.

17. Do not operate the tiller on a slope that is too steep for safety. When on slopes, slow down and make sure that you have good footing. Never permit the tiller to freewheel down slopes.

18. Never allow bystanders near the unit.

19. Use only attachments and accessories that are approved by TROY-BILT Manufacturing Company.

20. Use tiller attachments and accessories when recommended.

21. Never operate the tiller without good visibility or light.

22. Never operate the tiller when fatigued, or while under the influence of alcohol, drugs, or medication.

23. Operators shall not tamper with the engine-governor settings on the machine; the governor controls the maximum safe operating speed and protects the engine and all moving parts from damage caused by overspeed. Authorized service shall be sought if a problem exists.

24. Do not touch engine parts which may be hot from operation. Allow parts to cool before inspecting, cleaning, or repairing.

25. To load or unload the tiller, see the instructions in Section 4 of this Manual.

26. Please remember: To stop the tines/wheels, release the Forward Clutch Bail.

MAINTENANCE AND STORAGE

1. Keep the tiller, attachments, and accessories in safe working condition.

2. Check all nuts, bolts, and screws at frequent intervals for proper tightness to be sure that the equipment is in safe working condition.

3. Never store the tiller with fuel in the fuel tank inside a building where fumes may reach an open flame or spark (hot water and space heaters, furnaces, clothes dryers, stoves, electric motors, etc.).

4. Allow the engine to cool before storing the tiller in any enclosure.

5. To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.

6. Store gasoline in a cool, well-ventilated area, safely away from any spark or flame-producing equipment. Store gasoline in an approved container, safely out of the reach of children.

7. Refer to Section 5 of this Manual for instructions if the tiller is to be stored for an extended period.

8. Never perform any maintenance while the engine is running or when the spark plug wire is connected to the spark plug, except where specifically instructed to do so.

DECALS

Decals are used on your tiller to inform you of control location and operation, and to inform you of some potential hazards which may exist. If any of these decals ever becomes illegible or damaged, or if any are missing, please contact us immediately for replacements. Please refer to your TROY-BILT® TUFFY™ Parts Catalog for decal location and replacement information.

SECTION 2: EASY ASSEMBLY

Please follow the steps in this Section to correctly assemble your tiller. These steps will not take very long and they will assure you of having assembled your new tiller correctly.

Before you begin assembly, please read this Section all the way through. Then gather the tools you'll need.

You'll need the following items to assemble your tiller:

1. **One 1/2 inch wrench***
2. **Two 7/16 inch wrenches***
3. **Two 9/16 inch wrenches***
4. **One 3/8 inch wrench***
5. **A clean funnel (if you need to add any oil)**
6. **A rag to clean up any spilled oil**
7. **A block of wood that you'll use to support the tiller when removing the wheel**
8. **A ruler (for the belt tension check)**

***You can substitute two adjustable wrenches.**

Step 1: Unpacking and Loose Parts

Your tiller was shipped to you fully assembled except for the parts shown in Photos 2-1 and 2-2.

The small hardware items (in Photo 2-2) are located in a separate plastic bag. This hardware bag was included in the same larger plastic bag in which this Manual was shipped.

Compare the items that came in your shipping carton with the items shown in Photo 2-1. Compare the hardware items that came in the hardware bag with the items shown in Photo 2-2. If any items are missing or damaged, please contact us immediately for replacements. Our addresses, hours, and phone numbers are on Page 3 and on the back cover of this Manual.

NOTE: The Graphics Panel with the TROY-BILT Tuffy decal on it does NOT come attached to the Upper Handlebar as shown below in Photo 2-1. As part of the assembly, attach this panel to the Upper Handlebar with four self-tapping hex head screws (1/4"-20 x 1/2") included in the hardware bag (Photo 2-2 does not show the screws).

The items listed below are keyed to Photo 2-2. Compare these items to the contents of your hardware bag to make sure that you have everything needed to correctly assemble your tiller.

1. Six curved head bolts, 5/16-18 x 1½"
2. Six lockwashers, 5/16"
3. Six hex nuts, 5/16-18
4. One cable bracket
5. One hex head bolt, ¼-20 x 1¼"
6. One hex head locknut, ¼-20
7. Two hex head bolts, ⅜-16 x ¾"
8. Two flatwashers, ⅜"
9. Two hex locknuts, ⅜-16
10. Forward Clutch Cable Screw — #10-24 x 2"
11. Forward Clutch Cable Spring

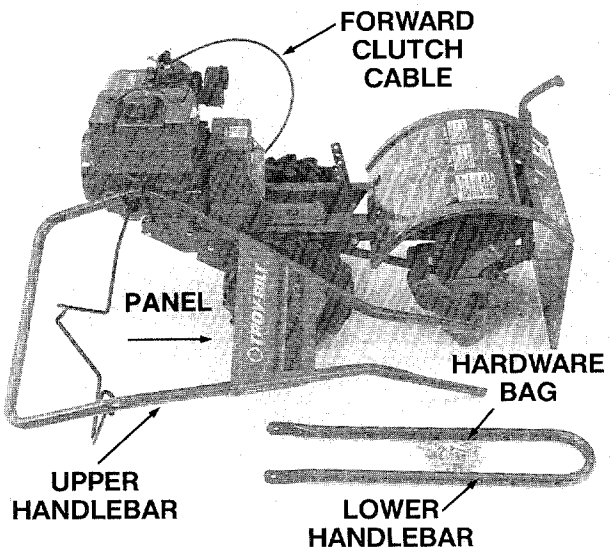


Photo 2-1: Contents of the Shipping Carton.

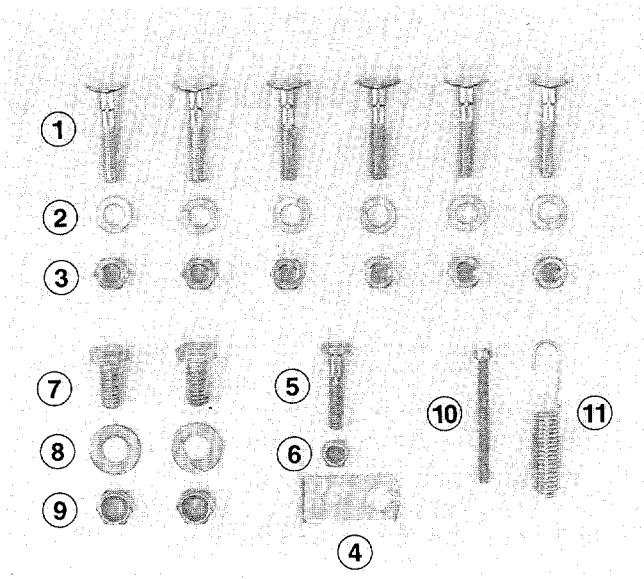


Photo 2-2: Contents of the Hardware Bag.

Step 2: Attaching the Handlebars

NOTE

You should attach the handlebars before attempting to move the tiller off its shipping platform. With the handlebars installed, the tiller will be easier to maneuver.

1. Place a block underneath the transmission so that one of the wheels is raised up.
2. Remove the hairpin cotter and clevis pin from the axle shaft. Slide the wheel off the axle shaft.

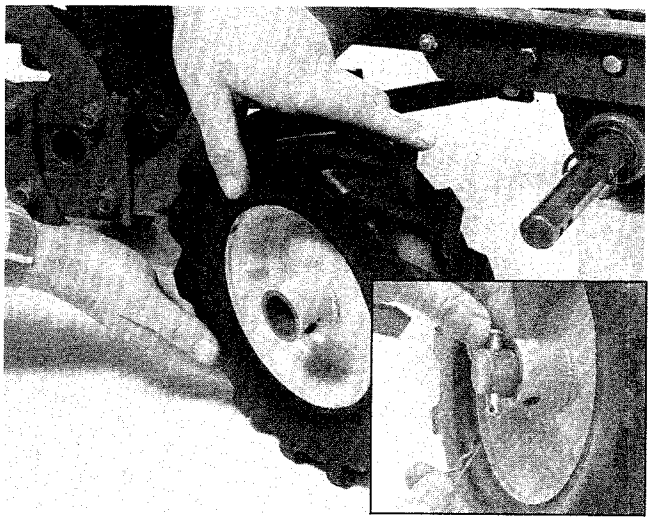


Photo 2-3: Removing the Wheel.

3. Place the lower handlebar between the frame rails as shown in Photo 2-4. Align the holes in the lower ends of the handlebar with the holes in the frame rails. From the outer side, insert one of the ⅜-16 x ¾" hex head bolts through the holes in the frame and the lower end of the handlebar. On the inner side of the frame rail, place a ⅜" flat washer and a ⅜" locknut on the threaded end of this bolt. Don't tighten this nut and bolt yet.

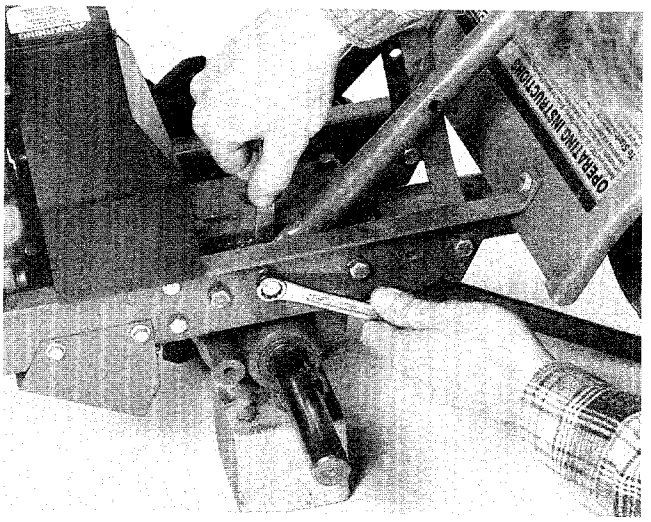


Photo 2-4: Fastening the Lower Handlebar to the Frame Rail.

4. Try to move the handlebar support so that one of its three holes aligns with the hole in the lower handlebar. If you can't move the handlebar support, you'll have to use two ½" wrenches to loosen the bolt that secures the handlebar support to the frame rail.

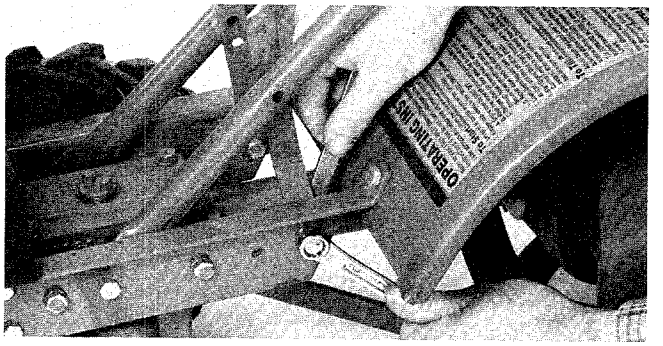


Photo 2-5: Loosening the Handlebar Support.

5. Move the lower handlebar and the handlebar support until one of the three holes aligns with the hole in the lower handlebar. From the outside, insert a curved head 5/16-18 x 1½" bolt through these holes. Place a 5/16" lockwasher and a 5/16-18 nut on the threaded end of this bolt.
6. Tighten all the bolts and nuts that secure the lower handlebar and the handlebar supports to the frame rails and to each other.
7. Place the wheel back onto the axle. Reinstall the clevis pin through the hole in the axle. Insert the hairpin cotter in the hole in the clevis pin. Make sure that you don't insert the clevis pin through the holes in both the wheel hub and the axle — the wheel should be free to rotate on the axle so that you can push the tiller off its shipping platform.
8. Repeat Steps 1 through 7 to install the other side of the lower handlebars to the other frame rail.
9. Position the lower ends of the upper handlebars on the outside of the lower handlebars.
10. Align the four holes in the handlebars (position handlebars so the bail faces down), then insert a 5/16-18 x 1½" curved head bolt through each hole (bolt head is on the other side). Place a 5/16" lockwasher and a 5/16" nut on the threaded end of each bolt. Use a ½" wrench to tighten all nuts. (Photo 2-6.)

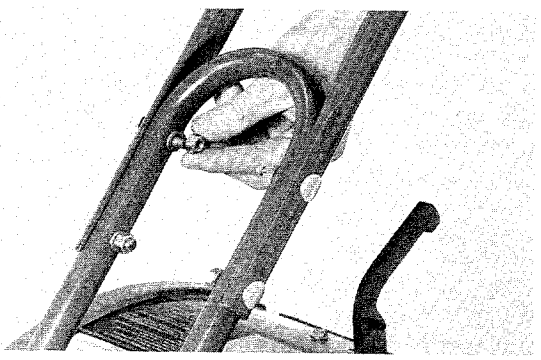


Photo 2-6: Installing the Upper Handlebar Assembly.

11. Insert the ¼-20 x 1¼" hex head bolt through the hole in the cable bracket. The shorter leg of the cable bracket should point away from the head of the bolt.
12. Insert the bolt (with the cable bracket on it) into the hole in the bend in the upper end of the lower handlebar.

IMPORTANT

The cable bracket is installed properly when its longer leg points downward and to the rear of the tiller. The shorter leg of the cable bracket should rest on top of the lower handlebar and should point down and to the front of the tiller. See Photo 2-7.

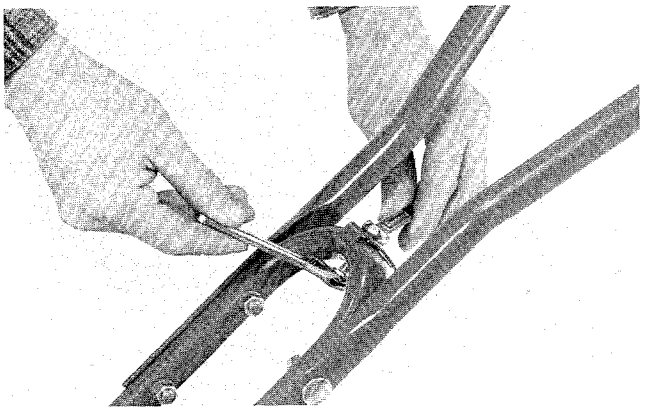


Photo 2-7: Installing the Cable Bracket on the Lower Handlebar.

13. Install the ¼-20 locknut on the threaded end of this bolt. Use two 7/16" wrenches to securely tighten it.
14. Unwrap the Forward Clutch cable from around the engine.
15. Slide the cable into the slot in the cable bracket. Center the connector on the upper end of the cable sheath in the hole in the cable bracket and push the connector into the hole until it snaps into place. See Photo 2-8.
16. Insert the 2" long screw into the Spring as Inset Photo 2-9 shows, then thread the screw into the Adjuster at the upper end of the Forward Clutch Cable. Hook the Spring on the upper end of the cable into the "V" in the Forward Clutch Bail as shown in Photo 2-9.

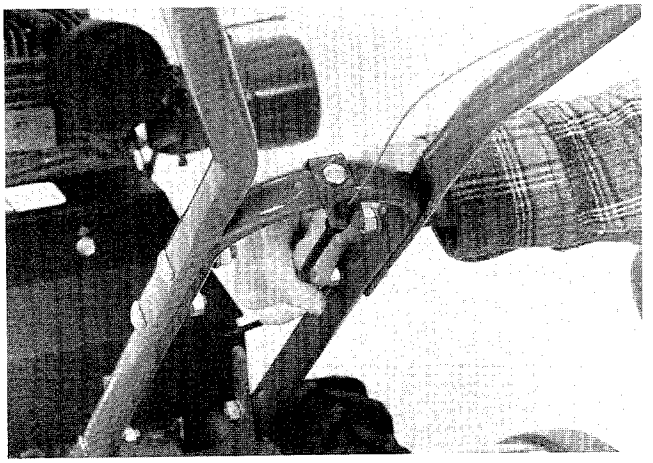


Photo 2-8: Installing the Forward Clutch Cable onto the Cable Bracket.

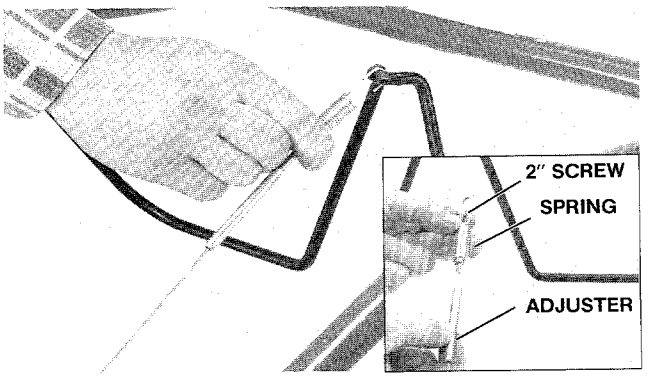


Photo 2-9: Attaching the Forward Clutch Cable to the Forward Clutch Bail.

Step 3: Make Sure That Both Wheels Are In Their FREEWHEEL Position Before Attempting to Move the Tiller Off Its Shipping Platform

The wheels on your tiller are held in place by clevis pins. These pins are used to engage or disengage drive to the wheels. Your tiller's wheels should be in their FREEWHEEL position — both should be free to turn on the axle. They should have been placed in this position in the previous step. Please refer to Page 10, "The Wheel Drive Pins" for specific instructions on the two wheel positions.

Before you start your tiller's engine, be sure to return both wheels to their WHEEL DRIVE position.

Step 4: Check the Transmission Gear Oil Level

After the handlebars are installed and the wheels are in their FREEWHEEL position, move the tiller off its shipping platform to a level area.

Your tiller has had the correct type of gear oil added to the transmission here at the factory, but you should check the gear oil level just to make sure that it is correct.

Check the transmission gear oil level as follows:
1. Move the Depth Regulator Lever to its highest position (the lowest notch in the lever is engaged). This places the tiller in its most level position.

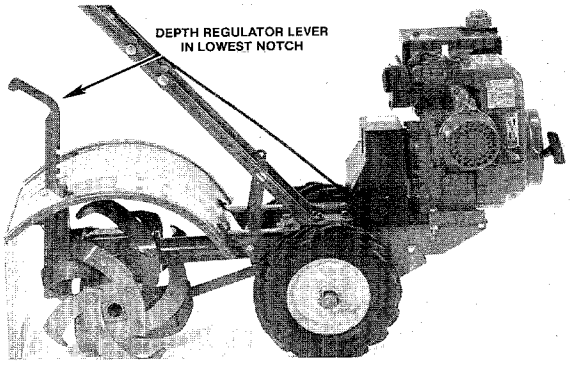


Photo 2-10: Most Level Position of the Tiller.

2. Unscrew the plastic filler/check plug from the top of the transmission.
3. Look down inside the hole in the top of the transmission. You'll see a drive shaft worm inside the transmission. (You may have to use a flashlight if the lighting is poor.) Look to either side of the worm and you should see the surface of the gear oil. If the gear oil level is correct, the surface of the gear oil should be approximately half way up the side of the worm. If the gear oil level is too low, you'll have to add gear oil to bring the level up. Refer to Page 23 "Checking, Adding, and Changing the Transmission Gear Oil" for specific information on how to add gear oil to the transmission.

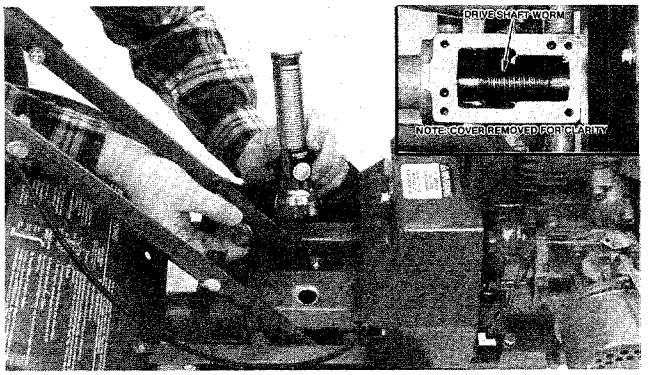


Photo 2-11: Look into transmission to check gear oil level. When correct, level is halfway up internal worm gear. Add gear oil if necessary.

Step 5: Add Motor Oil to Engine

The machine was shipped without oil in the engine. Fill the engine crankcase with oil before starting. Use a high quality detergent oil having an A.P.I. service classification of SF or SG. For temperatures above 32°F., use SAE 30 viscosity oil (using multigrade oil will increase oil consumption). For temperatures below 32°F., use SAE 5W30. DO NOT USE 10W40 OIL IN ENGINE!
1. Move the tiller to a level area.

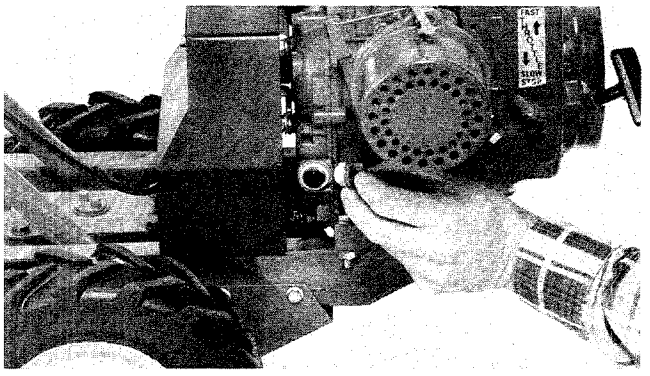


Photo 2-12: Add oil to oil fill hole.

2. Pull the Depth Regulator Lever all the way up until its lowest notch is engaged.
3. Unscrew the oil fill plug from the engine (see Photo 2-12).
4. Using a clean funnel, slowly pour oil into the oil fill hole until the oil reaches the overflow point. Always maintain the oil level at the overflow point in the oil fill hole.
5. Securely replace the oil fill plug.

Step 6: Checking the Tension of the Forward Clutch Cable

1. Lift the Forward Clutch Bail up. Hold it to the bottom of the upper handlebars.
2. Place a ruler by the Forward Clutch bail spring and measure its length. See Photo 2-13. The length should be 1⅞".
3. If the spring is too long or too short, you will have to make an adjustment to the cable tension. Please refer to "Checking and Adjusting the Belt Tension" on Page 27 of this Manual for adjustment instructions.

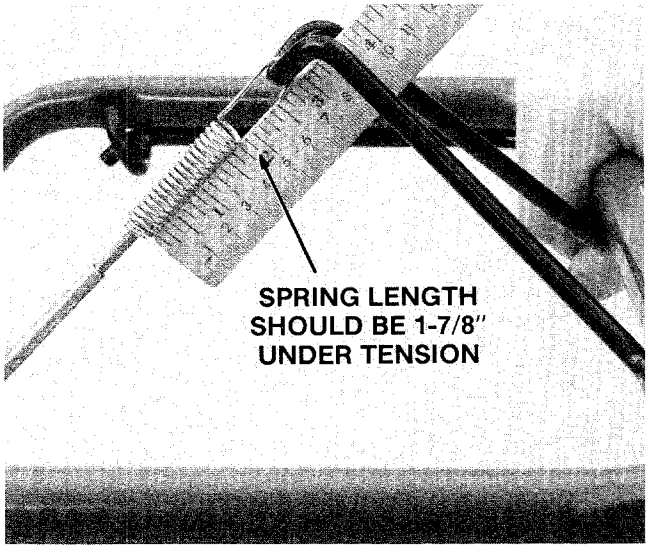


Photo 2-13: Checking Forward Clutch Cable Tension.

You've now finished assembling your TROY-BILT® TUFFY™ tiller. Please read the rest of this Manual and any other literature that you may have received so that you become familiar with the functions of all operating controls.

Pay special attention to the Safety Instructions. Always keep them in mind when using the tiller or performing any maintenance on the tiller. If you should lend your tiller to another person, make sure that he or she operates the tiller in a safe and correct manner.

Always be sure that you (or any other operator) know how to stop the tines/wheels and how to shut off the engine.

SECTION 3: TILLER AND ENGINE CONTROLS

This Section explains the operation of the controls that are on your tiller. Before starting your tiller's engine, practice moving the controls so that you become familiar with their location and function. Before operating your tiller, read this entire Section. Be sure that you know how to stop the wheels/tines quickly.

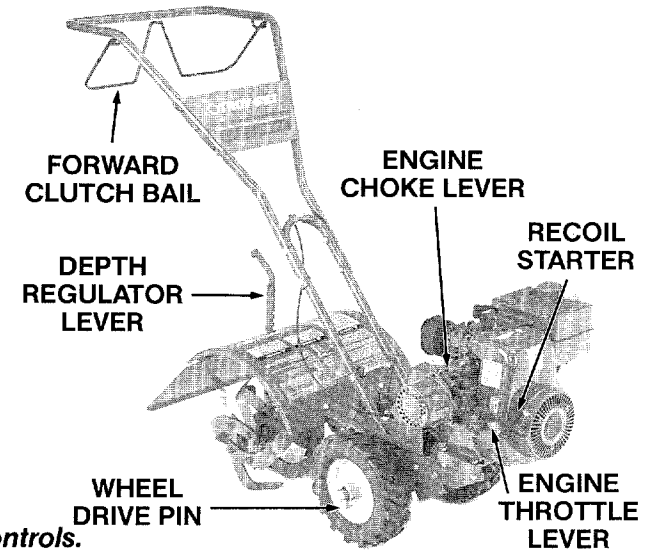


Photo 3-1: Tiller Controls.

Wheel Drive Pins

These pins (one on each side of the axle shaft) are used to engage or disengage drive to the wheels.

Before you start your tiller's engine, you must put both wheels in the WHEEL DRIVE position. Do this by inserting the wheel drive pins through the holes in BOTH the axle and the wheel hub. The wheels will now be "locked" to the axle and will turn when you start the engine and engage the Forward Clutch Bail.

⚠ WARNING

NEVER have either of the wheels in the FREEWHEEL position when the engine is running. When the wheels are in their FREEWHEEL position, they will not hold the tiller back; the tines can propel the tiller rapidly forward.

ALWAYS place both wheels in their WHEEL DRIVE position before starting the engine.

Failure to have both wheels in their WHEEL DRIVE position when the engine is running could result in loss of control, property damage, or personal injury.

Only use the FREEWHEEL position when the engine is turned off. This position allows you to push or pull the tiller easily. You can place the wheels in their FREEWHEEL position by inserting the wheel drive pins through the hole in the axle only. When the wheel drive pins are in the hole in the axle, they will keep the wheels on the axle, but will allow the wheel to rotate on the axle when you push or pull on the handlebars.

To place the wheels in the WHEEL DRIVE position:

1. Shut the engine off and allow it to cool. Disconnect the spark plug wire and prevent it from touching the spark plug.

2. Raise one wheel off the ground and place a sturdy support underneath the transmission.

⚠ WARNING

Do not lay the tiller on its side when changing the wheel position. Placing the tiller on its side could allow gasoline to leak from the tank, creating an unsafe condition.

3. Remove the hair pin cotter from the wheel drive pin. Pull the wheel drive pin out.

4. Slide the wheel outward on the axle. Align the holes in the wheel hub with the hole in the axle. Insert the wheel drive pin through these holes. Insert the straight leg of the hair pin cotter through the hole in the wheel drive pin — push the hair pin cotter through the hole as far as it will go. (Pushing the hair pin cotter all the way on will help to prevent it from being pulled out if it should get snagged on branches or other debris.)

5. Repeat Steps **2-4** for the other wheel. Remove the support from beneath the transmission.

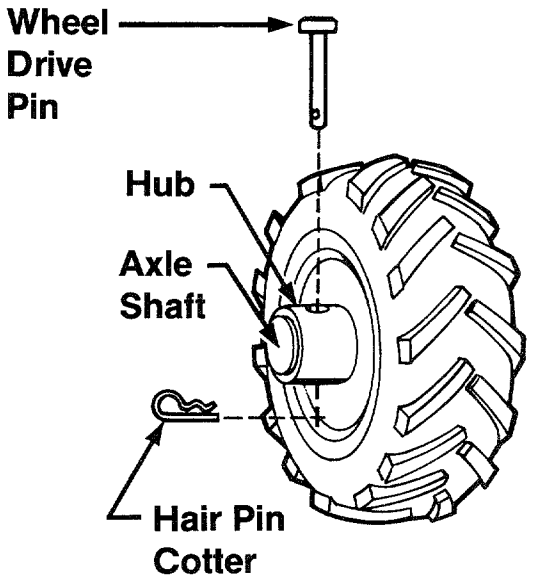


Figure 3-2: Insert the Wheel Drive Pin Through the Holes in BOTH the Wheel Hub and the Axle Shaft to Place Wheel in WHEEL DRIVE Position.

To place the wheels in the FREEWHEEL position:
1. Follow Steps **1, 2,** and **3** of "To place the wheels in the WHEEL DRIVE position".
2. Slide the wheel inward on the axle as far as it will go.
3. Insert the wheel drive pin through the hole in the wheel shaft only.
4. Insert the straight leg of the hair pin cotter through the hole in the wheel drive pin. Push the hair pin cotter through the hole as far as it will go.
5. Repeat Steps **1-4** for the other wheel. Then remove the support from beneath the transmission.

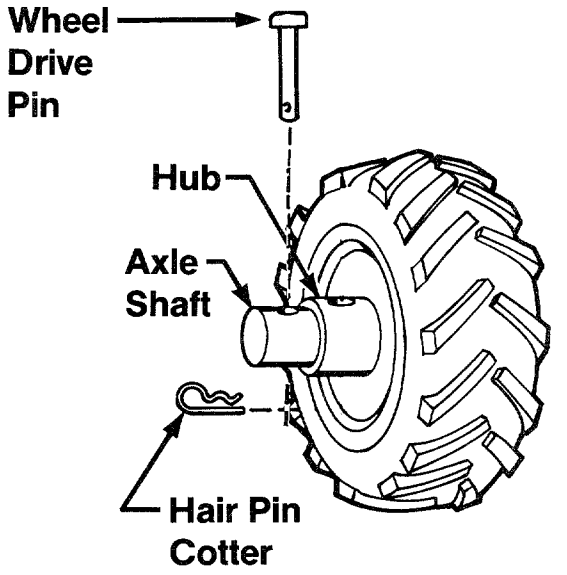


Figure 3-3: Insert Wheel Drive Pin Through the Hole in the Axle Shaft ONLY to Place Wheel in FREEWHEEL Position.

The Forward Clutch Bail

The Forward Clutch Bail hangs down beneath the handlebars. See Photo 3-4. It is used to engage or disengage (stop) the wheels/tines.

To operate the Forward Clutch Bail:

⚠ WARNING

Before starting the engine, be sure that both wheels are in their WHEEL DRIVE position. **(See "The Wheel Drive Pins" for instructions.)**

Failure to do so could result in loss of tiller control, property damage, or personal injury.

1. Check both wheels to make sure that they are in their WHEEL DRIVE position. (See "The Wheel Drive Pins" for instructions.)
2. Rest one hand (palm down) on top of the handlebar.
3. Use the other hand to lift the Forward Clutch Bail up.

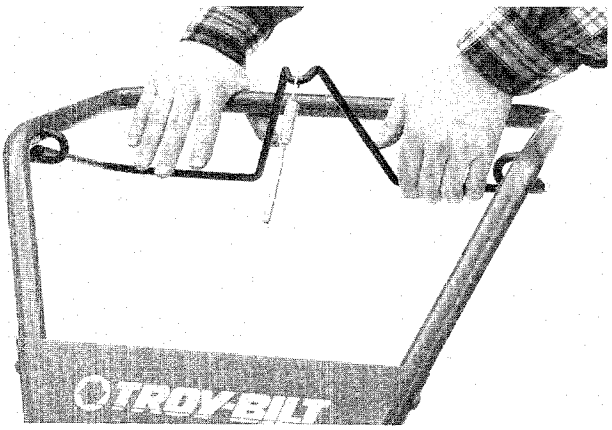


Photo 3-4: Operating the Forward Clutch Bail.

4. Hold the Forward Clutch Bail to the bottom of the handlebars. As long as you hold the Forward Clutch Bail in this position, the wheels/tines will rotate.
5. To stop forward motion of the wheels/tines, simply release the Forward Clutch Bail. It will drop downward and the wheels/tines will stop turning. However, the engine will continue to run.

The Depth Regulator Lever

This lever is located at the rear of the tine hood. It controls the depth of tine penetration into the soil. You change its setting by pulling back on it and moving it up (for deeper tine penetration) or down (for shallower tine penetration).

When you move the Depth Regulator Lever down until the highest notch on the lever is engaged, you place the tines in their "travel" position. This position raises the tines off the ground and allows the tiller to be moved without tilling. Use this Depth Regulator position when transporting the tiller over areas that you don't want to till.

Always begin tilling at one of the shallower (higher) Depth Regulator Lever settings. Gradually increase the depth setting; do not attempt to till too deeply too soon.

The condition of the soil determines the most effective depth settings and the number of passes required to reach full depth. Generally, the harder or heavier the soil, the shallower your starting depth will be and the greater the number of passes you'll have to make.

⚠ WARNING

Do not attempt to till too deeply too soon. Gradually work your way down to the deeper tilling depths.

Failure to do so could result in loss of tiller control, property damage, or personal injury.

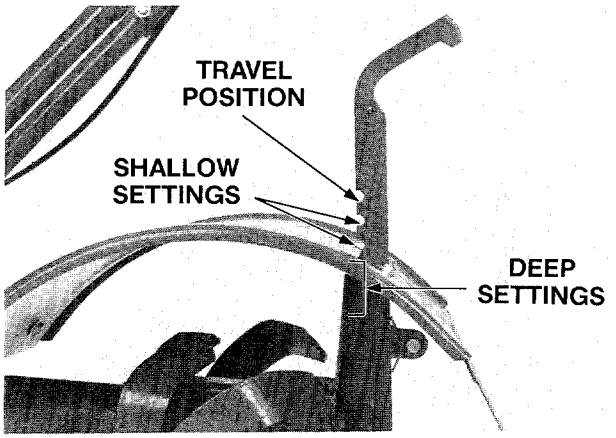


Photo 3-5: Depth Regulator Settings.

Handlebar Height Adjustment

You can adjust your tiller's handlebar height to any of three different positions. As a general rule, adjust the handlebars so that they are at waist level when the tines are 3"-4" in the soil. However, you should experiment to find the most comfortable height for your particular tilling needs.

To adjust the handlebar height:

⚠ WARNING

Before adjusting the handlebar height, shut the engine off, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

1. Use a ½" wrench to remove the nuts, bolts, and washers that attach the lower handlebars to the handlebar support braces.
2. Move the handlebars up or down to the desired position. Re-align the holes in the handlebars with the holes in the handlebar support braces.
3. Place the bolts in the holes. (Bolt heads should be on the outside of the handlebars).
4. Place a lockwasher and nut on the threaded end of each bolt. Use a ½" wrench to evenly tighten both nuts.

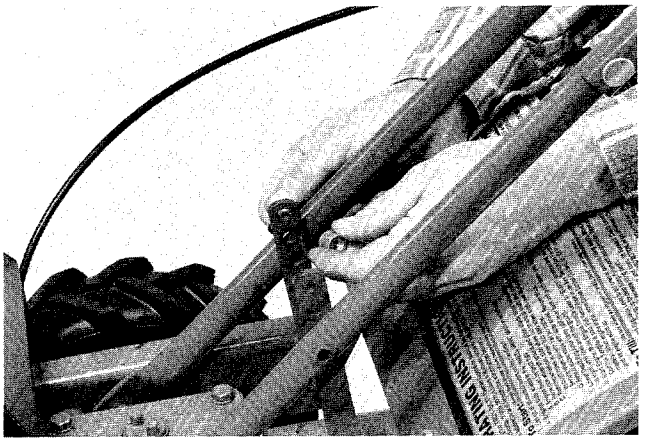


Photo 3-6: Handlebar Height Adjustment.

ENGINE CONTROLS

Engine Throttle Lever

This lever is located on the right hand side of the engine, in front of the carburetor. Use this lever to regulate engine speed, to start the engine, and to stop the engine.

- To increase engine speed, move the lever upward.
- To decrease engine speed, move the lever downward.
- To stop the engine, move the lever down to STOP.

⚠ WARNING

Do not attempt to move the Throttle Lever while you have the Forward Clutch Bail engaged. Release the Forward Clutch Bail before moving the Engine Throttle Lever

Failure to do so could result in personal injury or property damage.

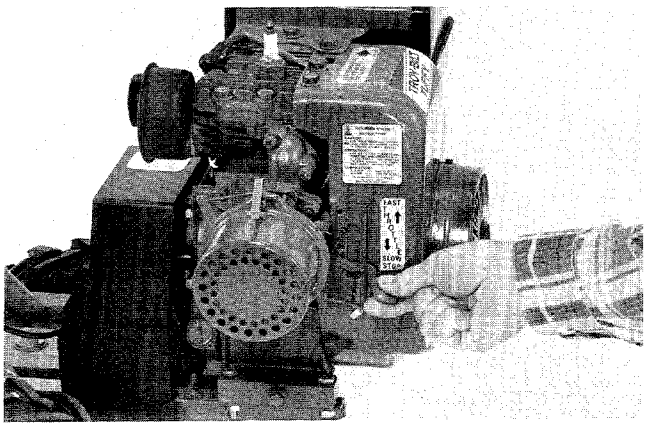


Photo 3-7: The Engine Throttle Lever.

Engine Choke Lever

Your tiller's engine has a manually operated choke. This control allows easier starting of the engine when it is cold by making the carburetor allow a richer air/gasoline mixture (more gasoline) to enter the cylinder.

To operate the Engine Choke Lever:

1. When starting a cold engine, move the Engine Choke Lever to FULL CHOKE (all the way in the direction of the arrow on the choke lever).

2. When starting an engine that has just been run, you may not need to move the Engine Choke Lever to FULL CHOKE; you may only have to move it to a partial choke position (between the FULL CHOKE position and the NO CHOKE position).

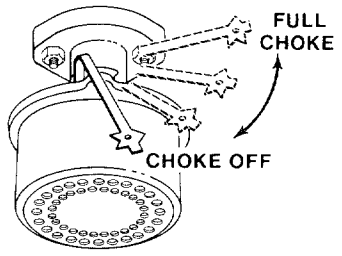
NOTE

If an engine is still warm from a previous run, it may be re-started without moving the Engine Choke Lever from its NO CHOKE position.

3. After the engine starts, gradually move the Engine Choke Lever to the NO CHOKE position.

IMPORTANT

Do not operate the tiller with the Engine Choke Lever in FULL CHOKE. Wait until the engine warms up and you can move the Engine Choke Lever to NO CHOKE (without the engine stalling) before you engage the Forward Clutch Bail.



CHOKE SETTINGS

Figure 3-8: The Engine Choke Lever.

Engine Recoil Starter

The engine recoil starting mechanism is located on the front of the engine. It has an automatic rewind to pull the starter rope back to get it ready for the next attempt at starting.

To use the recoil starter:

1. Check to make sure that both wheels are in their WHEEL DRIVE position (See Page 10 of this Manual).

2. Move the engine throttle lever to START. Move the Engine Choke Lever to FULL CHOKE.

3. Stand on the right hand side of the tiller and grasp the starter rope with your right hand. Place your left hand on the gasoline tank to stabilize the tiller while you're pulling the starter rope.

⚠ WARNING

Be sure that the area behind you is clear of any obstacles before you pull the starter rope.

Failure to do so could result in personal injury or property damage.

4. Slowly pull the starter rope until you feel resistance. Then rapidly pull the starter rope outwards. Repeat this until the engine starts. Do not let the rope snap back.

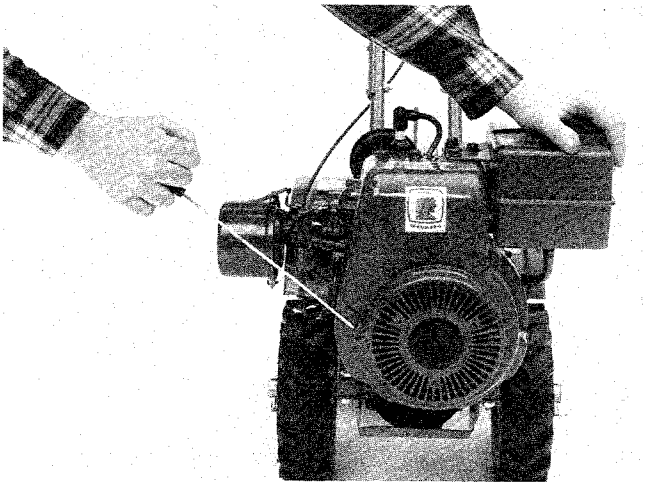


Photo 3-9: The Engine Recoil Starter Rope.

SECTION 4:
OPERATING INSTRUCTIONS

This Section will explain how to start, stop, and till with your TUFFY™ tiller. Before you begin to operate your tiller, read this Section thoroughly. Be sure that you know the location of, and understand the operation of all controls.

Before the first few times that you begin tilling, move your tiller to a safe, level area and practice maneuvering it without actually tilling. Keep the Depth Regulator Lever in its "travel" position while you're practicing. After you've become familiar with handling your tiller and operating its controls, you can move it into your garden to begin tilling.

Break-In Operation

To get the longest life from your tiller, you should perform the following maintenance items during the first few hours of tiller operation. This will get you off to a good start on your tiller maintenance program. It will also help you to familiarize yourself with the tiller.

1. After the first 2 hours of operation, change the engine oil. After this initial oil change, change the engine oil regularly every 10 hours of operation. If you operate the tiller in very dusty conditions, change the oil more frequently.

2. Check the transmission gear oil level after the first 2 hours of operation. Check it every 30 hours of operation thereafter.

3. Check the tension on the forward drive belt after the first 2-3 hours of operation. You may have to readjust the belt tension due to the new belt having seated on the pulleys.

4. After the first 2 hours of operation, check all fasteners (nuts, bolts, and screws) for tightness. After this initial check, make sure that you check the fasteners for tightness every 10 hours of operation.

Pre-Start Checklist

Before starting the tiller's engine, did you:

- ☐ Check the engine oil level and add oil as necessary?
- ☐ Make sure that the engine air cleaner isn't dirty or loose fitting?
- ☐ Fill the gas tank with fresh, clean gasoline?
- ☐ Reconnect the spark plug wire to the spark plug?
- ☐ Clean any debris from the engine cooling fins and engine cooling shrouds?
- ☐ Check to make sure that all controls are functioning normally?
- ☐ Check to make sure that both wheels are engaged in their WHEEL DRIVE position?
- ☐ Check to make sure that the Depth Regulator Lever is in its "travel" position? (You can readjust this lever later, when you begin tilling.)

Starting the Engine

⚠ DANGER

Do not run the engine indoors. Engine exhaust contains carbon monoxide, an ODORLESS and DEADLY gas.

Before you start your tiller's engine, move the tiller to a level area and perform the Pre-Start Checklist.

To start the engine:

1. Make sure that the Forward Clutch Bail is disengaged.

2. Make sure that both wheels are engaged in their WHEEL DRIVE position.

⚠ WARNING

NEVER have either of the wheels in the FREEWHEEL position when the engine is running. When the wheels are in their FREEWHEEL position, they will not hold the tiller back; the tines could propel the tiller rapidly forward.

ALWAYS place both wheels in their WHEEL DRIVE position before starting the engine.

Failure to have both wheels in their WHEEL DRIVE position when the engine is running could result in loss of control, property damage or personal injury.

3. Move the Choke Lever (on the carburetor) in the direction of the arrow to the FULL CHOKE position.

NOTE

An engine that is warm from previous running may start without any choke.

4. Move the Engine Throttle Lever to START.

5. Place your left hand on the gasoline tank to stabilize the tiller while starting.

6. Use your right hand to slowly pull the recoil starter rope until you feel resistance. Then rapidly pull the starter rope outwards. (Check behind you to make sure that you won't hit anything.)

7. Repeat Step **6** until the engine starts.

8. Gradually move the Choke Lever to NO CHOKE (opposite the direction of the arrow on the Choke Lever).

9. Move the Engine Throttle Lever to the desired speed.

Stopping the Engine

To stop the engine:

1. Release the Forward Clutch Bail. This will stop the wheels/tines from turning.

2. Move the Engine Throttle Lever to STOP.

NOTE

If moving the Engine Throttle Lever to STOP does not shut the engine off, you can shut it off by moving the Choke Lever to FULL CHOKE.

Do not continue to stop the engine with the Choke Lever as this can damage the engine. Repair the Engine Throttle Lever as soon as possible.

Tilling

To till:

1. Make sure that both wheels are in their WHEEL DRIVE position.

2. Start the engine. (See previous instructions.)

3. Move the Depth Regulator Lever to the desired position.

⚠ WARNING

ALWAYS begin tilling at a shallower Depth Regulator setting and gradually work down to the deeper settings.

Failure to do so could result in loss of tiller control, property damage, or personal injury.

If you should lose control of the tiller, release the Forward Clutch Bail.

4. For FORWARD motion of the wheels/tines, lift the Forward Clutch Bail up and hold it to the bottom of the handlebars. The wheels/tines will rotate as long as you hold the Forward Clutch Bail in this position.

5. As the tiller moves forward, let the wheels pull the tiller along. Don't try to push the tiller to make it go faster. Allow the tiller to move along at its own speed.

⚠ WARNING

Do NOT push down on the handlebars in an attempt to make the tiller dig deeper. This prevents the wheels from holding the tiller back and allows the tines to rapidly propel the tiller forward, which could result in loss of control, property damage, or personal injury.

To stop:

Simply release the Forward Clutch Bail. The wheels/tines will stop turning. The engine will continue to run until you shut it off by moving the Engine Throttle Lever to STOP.

Moving the Tiller Rearward

Since your TUFFY™ tiller weighs only 117 pounds, you will find it easy to maneuver rearward for short distances. Even though it does not have a power reverse, there's no need to drag the tiller backwards, putting a strain on your back.

To move the tiller rearward:

1. Release the Forward Clutch Bail.

2. Tilt the tiller forward slightly so that the tines are out of the soil.

3. Use both hands on the corners of the handlebars. Slightly tilt the tiller so that the right-hand wheel is off the ground.

4. Slowly swing the handlebars to the left so that the right-hand wheel takes a "step" to the rear.

5. Using the handlebars, set the right-hand wheel back down on the ground.

6. Again, use both hands on the corners of the handlebars. This time slightly tilt the tiller so that the left-hand wheel is off the ground.

7. Slowly swing the handlebars to the right so that the left-hand wheel now takes a "step" to the rear.

8. Using the handlebars, set the left-hand wheel back down on the ground.

9. By repeating Steps 3 through 8, you can easily "walk" your tiller in a rearward direction.

Turning the Tiller Around

Turning your TUFFY™ tiller around is fairly easy. However, you should practice this maneuver in an open level area before attempting it in the garden.

To turn the tiller around:

1. As you approach the end of a row in your garden, lift up the handlebars so that the tines clear the ground.

Photo 4-1: Coming out of a Row in the Garden.

2. As you come out of a row, swing the handlebars to the side pivoting the tiller 180°, to move the tiller so that you can line it up with the next row you'll be tilling.

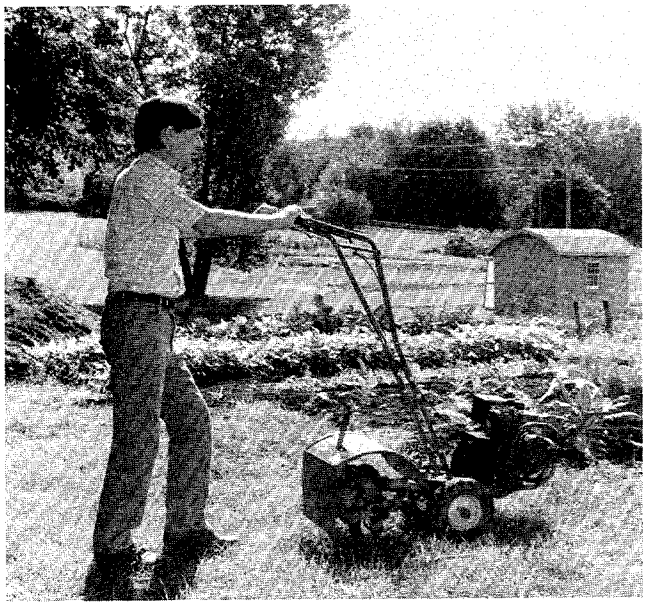


Photo 4-2: Lining Up the Tiller with Next Row.

3. As the tiller enters the next row, lower the handlebars slowly so that the tines start to till the garden soil.

Tilling in the Garden

This portion of the Manual will give you many ideas about using your TUFFY™ tiller in the garden. Keep these ideas in mind when you plan your garden. You can design the layout of the garden so that you'll get the most beneficial use from your tiller.

Guiding Your Tiller

When tilling, relax and allow the tiller to move along at its own speed. Don't try to push it along to make it go faster. Do not try to push down on the handlebars in an attempt to make the tiller dig deeper.

Walk to the side of the tiller that is yet to be tilled. Use one hand and keep a firm hand grip on the handlebars (but keep your arm loose) to guide the tiller. Walking alongside the tiller keeps you from stepping in the newly tilled soil and replanting any weed seeds that your tilling might have brought to the surface. It is also easier to control the tiller in hard or rocky soil if you are walking beside it using one hand, instead of walking behind it controlling it with two hands.

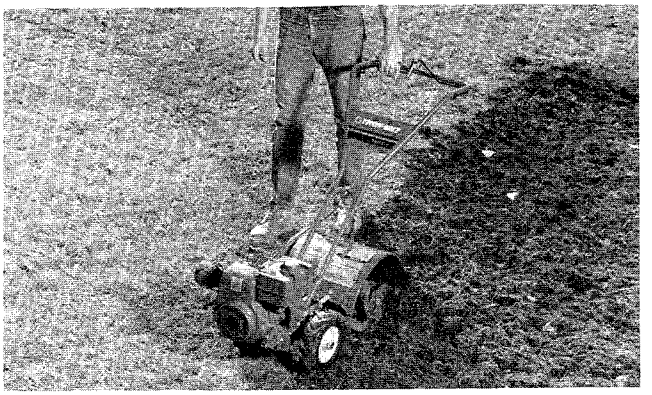


Photo 4-3: Tilling With Just One Hand.

Tilling Depths

⚠WARNING

ALWAYS begin tilling at a shallower Depth Regulator setting and gradually work down to the deeper settings.

Failure to do so could result in loss of tiller control, property damage, or personal injury.

When you till, do not try to till too deeply at first. Gradually raise the Depth Regulator Lever (one notch at a time) so that your tiller digs slightly deeper on each pass. This makes sure that you do a thorough job of tilling. It also makes sure that your tiller won't jump or buck as much as if you had tried to till too deeply too soon.

When you are cultivating between rows of plants, use one of the shallower Depth Regulator Lever settings. This will let you rid your garden of in-row weeds, but won't let the tines dig deep enough to damage your plants' roots.

Seedbed Preparation

Prior to planting your garden, you should make sure that the soil is as loose and finely textured as possible through proper tilling. You should till your garden two or three times before you plant. Do this several weeks before you plan to plant your garden. Then, right before you plant, you should till the garden one more time. This final tilling will help your plants get a head start on any weeds that might sprout.

When preparing the soil, go over the same path twice in the first row, then overlap one-half the tilling width on each succeeding pass. See Figure 4-4. After going up and down the rows in one direction, make a second pass at a right angle across your earlier rows. See Figure 4-5. Again, overlap each pass to really pulverize the soil. (In very hard ground, it might take three or four passes before you make much headway.)

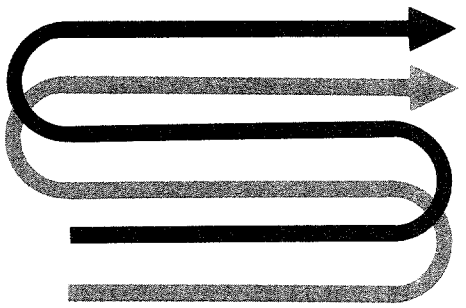


Figure 4-4: Tilling Sequence for Initial Tilling of Soil.

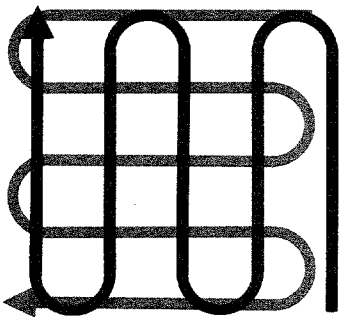


Figure 4-5: Second Tilling Sequence.

If your garden isn't long enough to till lengthwise and then crosswise, you should first overlap each pass by one-half a tilling width, followed by successive passes of one-quarter a tilling width. See Figure 4-6. This makes sure you thoroughly break up the soil.

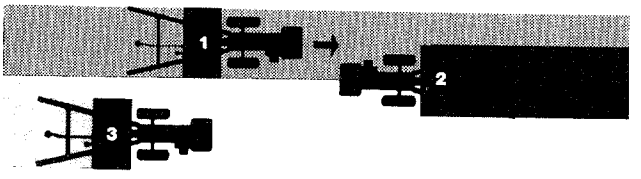


Figure 4-6: Tilling Sequence for Narrow Strips.

Don't till the soil when it is too wet. This will produce large clumps that will later dry out and become hard. Test the wetness of the soil by squeezing it in your hand. If it compresses easily into a ball, it is still too wet to till. If time will permit, always wait for the ground to dry before tilling.

Avoid Making Footprints

When tilling (particularly your final pass), always walk to the side of the tiller that is yet to be tilled. This will prevent you from leaving footprints in the newly tilled soil.

Eliminating footprints from your garden not only improves its appearance, but prevents soil erosion and avoids "planting" unwanted weed seeds right back into the soil.

Cultivating

When you plan your garden, keep in mind that your TUFFY™ tiller has a tilling width of approximately 14". Leave at least this amount of space between rows in your garden (plus some extra width for plant growth). You should take into account the extra width that some bushy plants, such as beans, tomatoes, etc., will require. See Photo 4-7.

When cultivating, you should use the shallower Depth Regulator Lever settings. You don't want to cultivate deeper than one or two inches. Shallow cultivating will keep new weed growth to a minimum and will make sure that you don't damage any of your plants' roots.

You can begin cultivating as soon as your seedlings appear and then cultivate as often as once a week. The day after a rain shower is an excellent time to cultivate, as long as the plants are dry. Avoid working in the garden when your plants are wet, since diseases, blights, and rusts can easily be spread among the wet plants with your hands, clothes, or even with your tiller.

Photo 4-7: Cultivating Between Rows.

Power Composting

To keep your garden productive, you should regularly till organic matter back into the soil. Tilling this organic matter back into the soil helps to replace any nutrients you have harvested (in the form of vegetables) and also helps improve soil structure.

A simple way to do this is to use your tiller to chop, blend, and turn under leafy crop residues, leaves, grass clippings, and "green manure" crops. This organic matter will decompose and add important nutrients back to your garden soil.

When you use your tiller to power compost, put the Depth Regulator Lever in the deepest setting that you can use without having the tiller jump or without making the tiller's engine labor too hard.

⚠ WARNING

When power composting, do not keep the Depth Regulator Lever at a deep setting if the tiller jumps or bucks.

If the tiller jumps or bucks while power composting, move the Depth Regulator Lever down to one of the shallower settings and then slowly increase the tilling depth on each pass.

Failure to do so could result in loss of tiller control, property damage, or personal injury.

You should till garden crop residues back into the soil as soon as you have harvested the vegetables, since green, tender crops are more easily tilled.

Since your TUFFY™ tiller is a comparatively lightweight machine and smaller than our other models, we don't recommend it for power composting larger standing crops such as cornstalks. However, you can uproot the leftover green cornstalks, run them through a shredder, or chop them up into smaller pieces and then scatter them on your garden. This allows you to power compost them back into the soil.

After you've tilled under any crop residues, you should plant a cover crop such as buckwheat, annual ryegrass, peas, or beans to protect your garden soil. Later you can till this crop back into the soil. This will help build your soil, add nutrients to the garden and help control soil erosion.

Photo 4-8: Feed Your Garden by Power Composting.

"Extra Traction" Frame Weights

Our "Extra Traction" Frame Weight Kit is a very handy accessory for your TUFFY™ tiller. This kit consists of two 13½ pound, cast iron weights which attach to the frame above each wheel axle.

Whether you are tilling very heavy soil or if you just wish to improve your tiller's traction, this kit is just what you need. The weights will help your tiller whenever you encounter tougher tilling conditions and will allow your tiller to till deeper at a somewhat faster rate.

The weights come in a kit that has complete installation hardware and easy to follow instructions. You should be able to install them on your tiller in approximately 45 minutes or less.

Preventing Tines From Becoming Tangled

When power composting, you may find that the tines become tangled with material (this happens with taller vegetation, long grass, stringy stalks, or tough vines especially). To lessen this tangling, try swinging the handlebars from side to side 6"-12" while tilling. This "fishtailing" often will dislodge any debris.

If "fishtailing" doesn't work, you will have to stop the tiller's engine and cut away any debris. Use a small pocketknife or linoleum knife.

⚠ WARNING

Before removing any debris from the tines, shut the engine off, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

To help prevent tangling: 1. always use the deepest Depth Regulator setting you can (without making the tiller jump or buck), 2. till under cover crops and crop residues while they are still green, and 3. shred or chop up any tall, tough, or stringy organic matter before tilling it into the soil.

If, even after following the previous tips, you still have a tough tangling problem, you may have to mow or cut the vegetation before power composting it.

Photo 4-9: Cutting Tangled Tines Free.

Tilling Slopes

If you have to plant your garden on a slope, make sure that the slope is moderate — that it is not too steep to safely till.

You should plant your garden rows vertically (up and down the slope). This allows you to use the entire area for your seedbed and gives you enough room between the rows so that you can cultivate between them. You lose these valuable benefits when you terrace garden, which is discussed later.

If you put enough organic material into your garden's soil to improve its water-holding capabilities, you should not have a problem with soil erosion.

When you begin to till vertically on a slope, start at the bottom and go up. The tines dig in more deeply when you go uphill than when you go downhill. As you turn around at the top and go back downhill, overlap the uphill pass by about half the tilling width.

⚠ WARNING

Do not operate the tiller on a slope that is too steep for safe operation. Till slowly and be sure that you have good footing.

Failure to do so could result in personal injury or property damage.

NOTE

When you till on a slope, the oil level in your tiller's engine slants toward the downhill side of the engine. Some internal engine parts may not get enough oil. To prevent this from happening, make sure that your engine oil level is full to the point of overflow from the oil check tube before starting to till. Also, be sure to check the oil level every thirty minutes while you're tilling on a slope.

Terrace Gardening

If the slope that you would like to plant your garden on is too steep or short for vertical tilling, you may have to till across the slope. To achieve best results, use your tiller to create terraces for your garden.

Make your terraces 2-3 feet wide. You can plant one or two rows of plants in each terrace and later till the plants under. However, you may not have enough room to use the tiller for cultivating. If you make the terraces too wide, you'll be digging as much as a foot into the uphill side of the terrace and you'd end up trying to grow the plants in poor subsoil.

Start to terrace at the top of the slope and work down, always keeping the uphill wheel in the soft, newly tilled soil. Start each succeeding terrace by walking below the terrace you are preparing. In three or four passes (depending upon the type of soil) you can create a terrace that is flat and wide enough for planting.

Leave at least a 12" wide untilled space between terraces. Keeping the soil unbroken here will help to prevent the terraces from breaking apart and washing downhill. This unbroken area also gives you a walk space between the terraces.

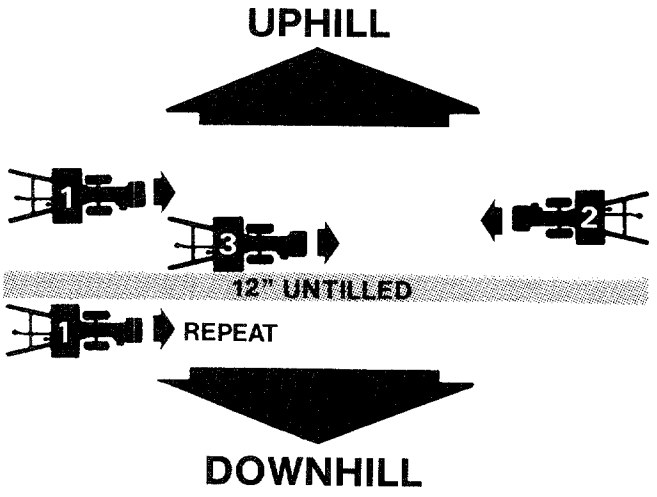


Figure 4-10: Creating a Terrace in Three Passes.

Loading and Unloading the Tiller

⚠WARNING

Loading and unloading the tiller into or out of a vehicle is potentially hazardous. We don't recommend that you do so unless absolutely necessary, as this could result in personal injury or property damage.

However if you must load or unload the tiller, use the following guidelines.

- Shut the tiller engine off before loading or unloading. Allow the tiller engine to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

- The tiller is too heavy (over 115 pounds) and bulky to be lifted safely by one person. If you do lift the tiller, two or more people should share the load.

- We recommend that you use sturdy ramps and that you manually (tiller engine shut off) ROLL the tiller into or out of the vehicle. This will require assistance from another person.

- Ramps should be strong enough to support the tiller AND the handlers. The ramps should provide good traction to prevent slipping; they should have side rails to guide the tiller up and down the ramps; and they should have a locking device to secure them to the vehicle bed.

- The operator and handlers should wear sturdy footwear that will help prevent slips.

- Position the vehicle so that the ramp angle is as flat as possible (the less steep the incline of the ramp, the better). Turn the vehicle's engine off and apply the vehicle's parking brake.

- When going UP ramps, stand in the normal operating position and push the tiller ahead of you. Have a person at each wheel to turn the wheels.

- When going DOWN ramps, walk backwards down the ramp with the tiller following you. Keep alert for, and avoid any obstacles that could cause you to fall. Have a person at each wheel to control the speed of the tiller. Never go down ramps tiller-first, as the tiller could tip forward.

- Have wooden blocks handy to place on the downhill side of the wheels if you need to stop the tiller from rolling down the ramp when unloading or loading. Use the blocks to temporarily keep the tiller in place on the ramps while you get a firmer grip on the handlebars, reposition the tiller, etc. Also use the blocks to keep the wheels in place after you've tied down the tiller.

- After getting the tiller positioned in the vehicle, make sure that both wheels are engaged in their WHEEL DRIVE position to help prevent the tiller from moving around in the back of the vehicle. Then securely tie down the tiller.

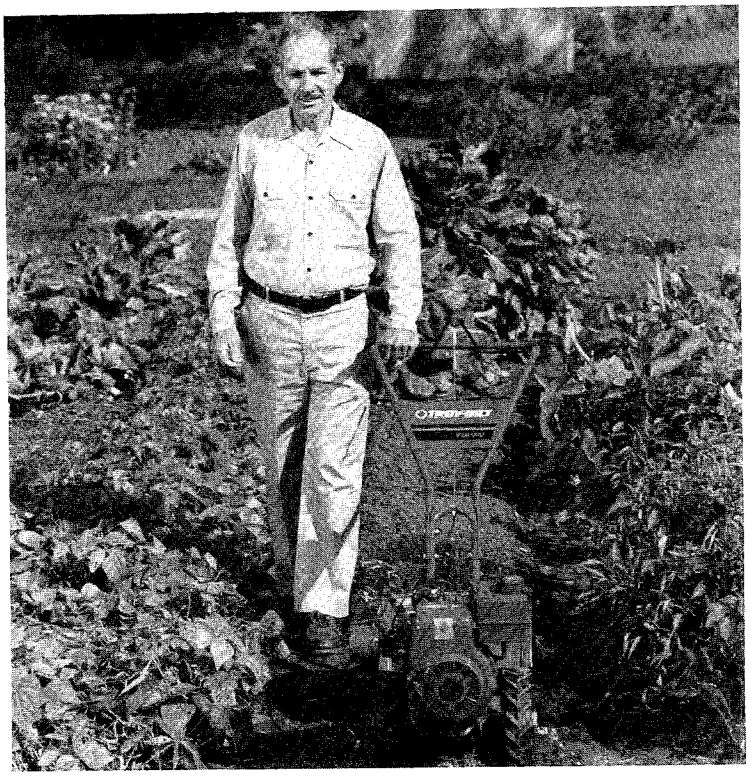


Photo 4-11: All your Gardening Jobs become so easy to do with the Tuffy Tiller.

SECTION 5: TILLER AND ENGINE MAINTENANCE

There are several items of maintenance you can perform regularly that will keep your TUFFY™ tiller in good repair and operating as it should. These items are: 1) changing the engine oil regularly, 2) lubricating the controls regularly, 3) keeping correct tension on the forward drive belt, 4) replacing the air cleaner element when it's dirty, and 5) keeping the engine cooling fins clean.

Since you will be operating your tiller in the garden, where it is frequently hot and dusty, proper maintenance is very important to assure yourself that you're getting the most value from your tiller.

⚠ WARNING

ALWAYS stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug whenever you perform any maintenance on the tiller or its engine. This prevents an accidental start.

Failure to do so could result in personal injury or property damage.

Lubrication

Refer to Photos 5-1 and 5-2 to find the various lubrication points for your tiller. Use ordinary, clean motor oil (30 weight) where oil is called for. When possible, use a good quality grease that has a metal lubricant added. However, if you do not have this type of grease, you can use regular automotive grease.

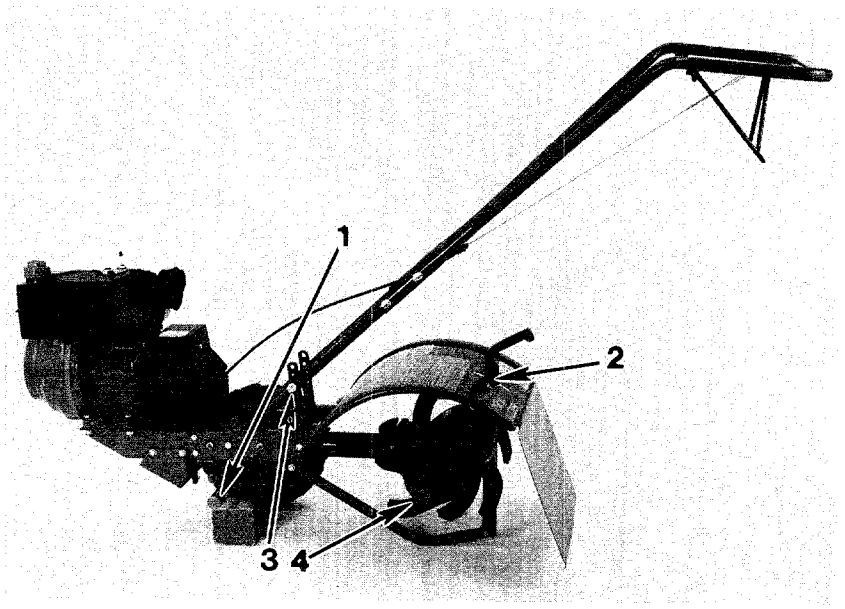


Photo 5-1: Tiller Lubrication Points.

1. Wheel Shaft: Whenever you remove the wheels, use a clean rag to wipe off the old grease. Inspect the axle for rust and burrs (use a fine grade of sandpaper to remove any rust or burrs). Then apply grease to the wheel shaft. This makes future removal of the wheel easier.

2. Depth Regulator Lever: Clean and grease the back, front, and sides of the Depth Regulator Lever.

3. Handlebar Support Bolts: Oil the threads on the handlebar support bolts. This helps to keep them from rusting, which would make it difficult to remove the nuts when making handlebar height adjustments.

4. Tine Shaft: Remove the tine holder assemblies and clean any rust or burrs from the tine shafts. Apply grease to the tine shafts and then reinstall the tine holder assemblies.

5. Shifting Mechanism: Carefully oil all of the pivot points on the shifting mechanism. See Photo 5-2 (next page).

NOTE

When you oil the pivot points on the shifting mechanism (shown in Photo 5-2), be sure that you do not get any oil on either the belt or the pulleys. If you do, the belt could slip on the pulleys and not transmit engine power to the transmission.

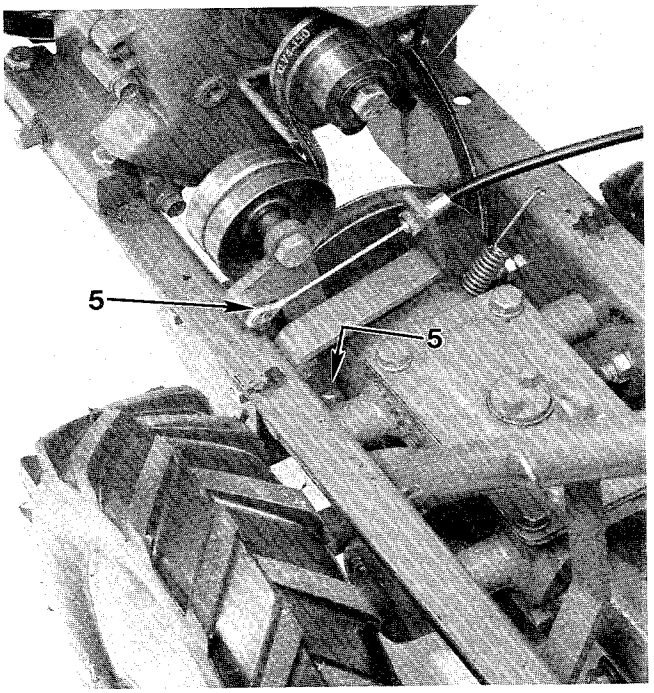


Photo 5-2: Lubrication Points on the Shifting Mechanism.

Checking Engine Oil Level and Adding Engine Oil

NOTE

Check the engine oil level frequently during the initial two hours of engine break-in operation.

Always check your engine oil level before starting the tiller's engine. While you're operating the tiller, stop the engine and check the oil level at least every 5 hours of operation.

Running the engine when it's low on oil can cause expensive engine damage. Always keep the engine oil at its recommended level.

To check the engine oil level:

1. Move the tiller to a level area.

⚠ WARNING

Stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug before checking the engine oil level.

Failure to do so could result in personal injury or property damage.

2. Pull the Depth Regulator Lever all the way up.

3. Unscrew the oil fill plug from the right hand side of the engine.

4. If the oil level is correct, oil should just begin to flow out of the oil fill hole. If this happens, your check is finished — reinstall the oil fill plug.

5. If no oil flowed out of the oil fill hole, add oil to the engine as follows:

a. Insert a clean funnel into the oil fill hole.

b. Select the correct type and weight of oil from "Specifications" on Page 32.

c. Slowly pour oil into the funnel. Check the oil level frequently while pouring (be sure to remove the funnel when checking). When oil just begins to flow out of the hole, the oil level is correct.

d. Screw the oil fill plug back into its hole. Make sure that it is securely hand tightened.

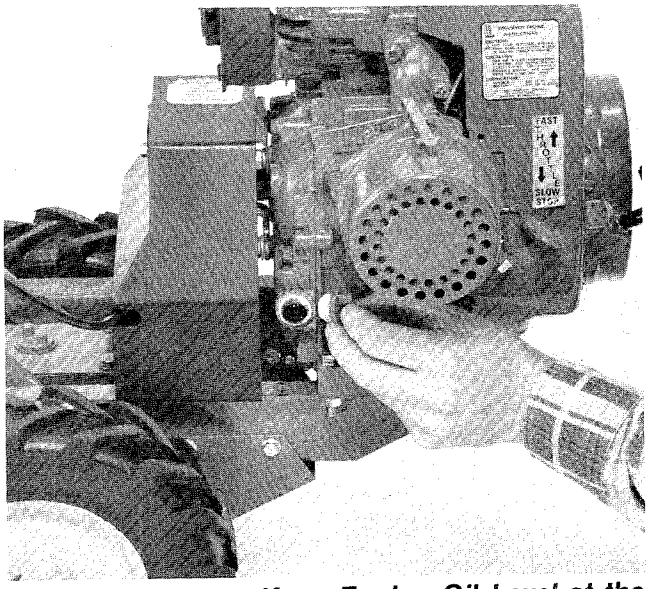


Photo 5-3: Always Keep Engine Oil Level at the Point of Overflow From the Oil Fill Hole.

Changing Engine Oil

Change your engine oil after the very first two hours that you operate your tiller. After this initial engine oil change, change the engine oil every 10 hours of operation.

NOTE

The engine manufacturer recommends that you change the engine oil every 25 hours of engine operation. Since you constantly operate your tiller in a dusty, dirty environment, we recommend that you change the engine oil every 10 hours of engine operation (or even sooner if you're operating the engine in a very dirty or dusty environment).

Changing your engine oil at the recommended intervals is a very important preventative maintenance procedure. When you drain the old engine oil from the engine, it carries impurities and contaminants out of the engine. If left in the engine, they would increase wear on the internal engine parts.

The new oil makes sure that all the various internal moving parts of the engine are properly lubricated.

To change the engine oil:

1. Start the engine and allow it to run until it is warm. Then TURN THE ENGINE OFF.

⚠ WARNING

Before changing the engine oil, turn the engine off, disconnect the spark plug wire and prevent it from touching the spark plug. Do not touch any engine parts which may be hot.

Failure to do this could result in personal injury or property damage.

2. There are two engine oil drain plugs, one on either side of the engine base. Use whichever drain plug is more convenient.

3. Place a 2" by 4" board beneath the wheel opposite the drain plug you'll be using.

4. Place a drain pan with a minimum capacity of one quart beneath the drain plug you'll be using.

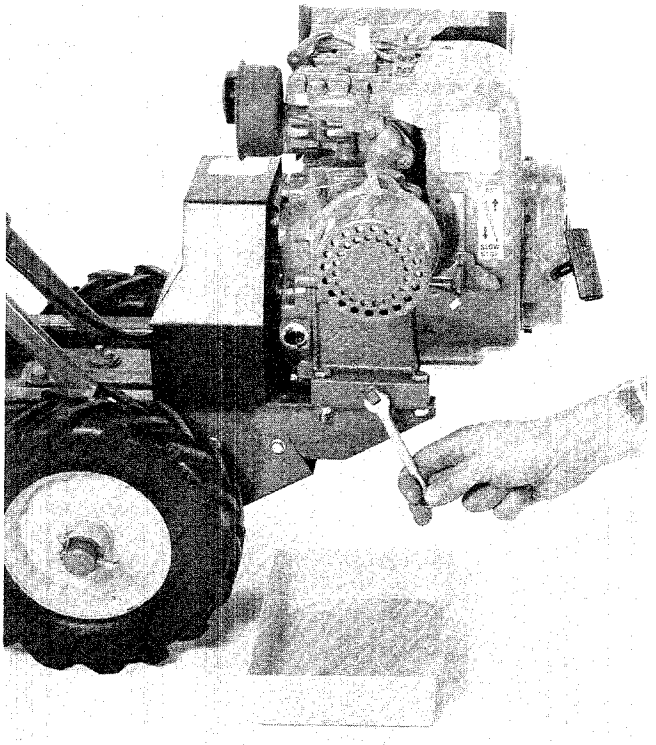


Photo 5-4: Draining the Engine Oil.

5. Use a ⅜" open end wrench to remove the drain plug.

6. Allow all of the old engine oil to drain out.

7. Reinstall the drain plug. Be sure to tighten it securely with the ⅜" open end wrench.

8. Remove the board from beneath the wheel.

9. Refill the engine with the correct type and weight of oil. See "Specifications" on Page 32 for this information.

10. Make sure that you double check the oil level before you start the engine.

Checking, Adding, and Changing the Transmission Gear Oil

⚠ WARNING

Before checking, adding, or changing transmission gear oil, shut the engine off, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

To check the transmission gear oil level:

1. Move the tiller to a level area.

2. Pull the Depth Regulator Lever all the way up.

3. Unscrew the plastic filler/check plug from the top of the transmission.

4. If you're not in bright sunlight, use a flashlight to look into the filler/check plug hole. You'll see a worm on the drive shaft. Then look on either side of this worm and you'll see the surface of the gear oil. When the gear oil level is correct, it should be halfway up the side of the worm.

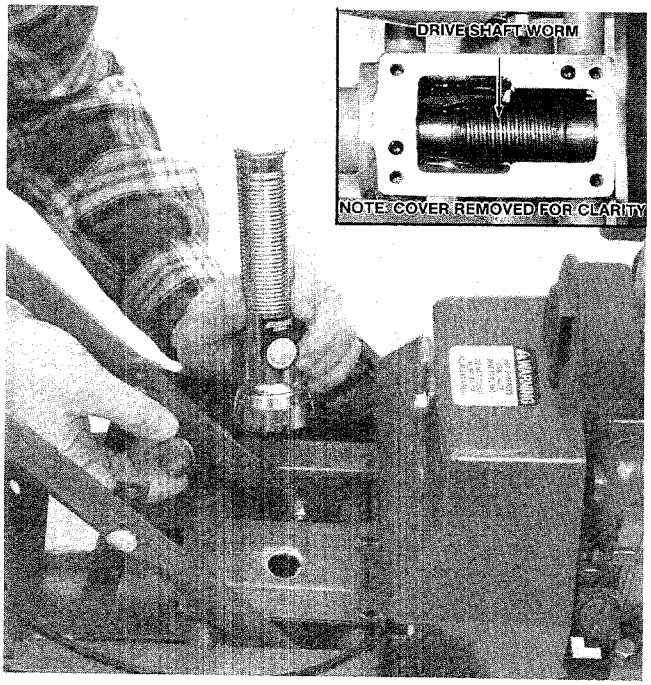


Photo 5-5: Checking Transmission Gear Oil Level.

To top off the oil level in the transmission:

1. Move the tiller to a level area. Pull the Depth Regulator Lever all the way up.

2. Unscrew the plastic filler/check plug from the top of the transmission.

3. Insert a funnel into the filler/check plug hole.

Note: When only adding a few ounces of gear oil, use API rated GL-3 or GL-5 transmission gear oil with a viscosity of either SAE 140, SAE 85W-140, or SAE 80W-90. (straight SAE 140 with an API rating of GL-3 is preferred). When adding all-new gear oil after draining the transmission, refill only with SAE 140 or SAE 85W-140 with an API of GL-3.

4. Slowly pour clean SAE 140, SAE 85W-140, or SAE 80W-90 transmission gear oil into the transmission. Frequently check the level so you don't overfill the transmission.

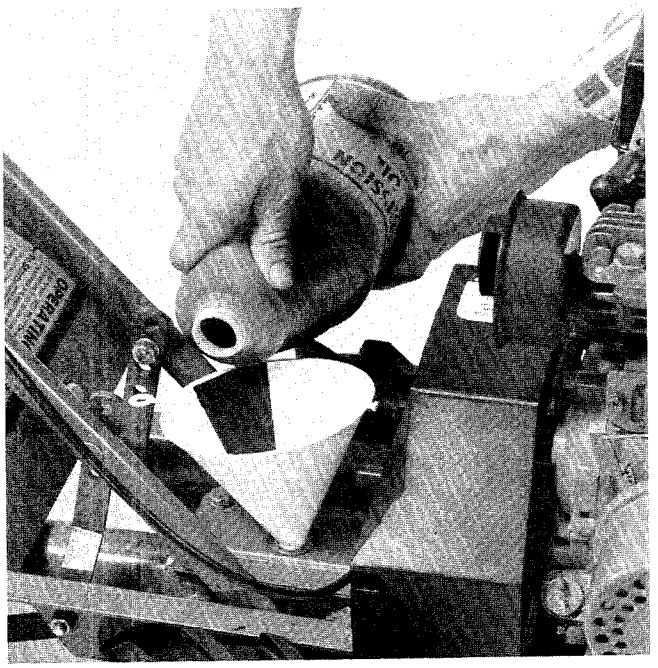


Photo 5-6: Adding Gear Oil to the Transmission.

5. When the gear oil level is correct, reinstall the plastic filler/check plug in the top of the transmission.

To change the transmission gear oil:

The transmission gear oil does not have to be changed unless you know that it has been contaminated by sand, dirt, or metal particles. You'll also have to change the gear oil if you have to do internal repairs on the transmission.

1. Drain the gasoline from the fuel tank.

⚠ DANGER

Gasoline is highly flammable and its vapors are explosive. Follow these safety practices to prevent injury or property damage from fire or explosion.

a. Allow the engine and muffler to cool at least 2 minutes before draining fuel tank.
b. Do not allow open flames, sparks, matches, or smoking in the area.
c. Wipe up any spills and push the tiller away from spilled fuel.
d. Use only an approved gasoline container and store it safely out of the reach of children.
e. Do not store gasoline in an area where its vapors could reach an open flame or spark, or where ignition sources are present (such as hot water and space heaters, furnaces, clothes dryers, stoves, electric motors, etc.).

2. Drain the oil from the engine.
3. Remove the four bolts and washers that secure the transmission cover to the front part of the transmission. Lift the cover and gasket off the transmission.
4. Remove the left hand wheel.

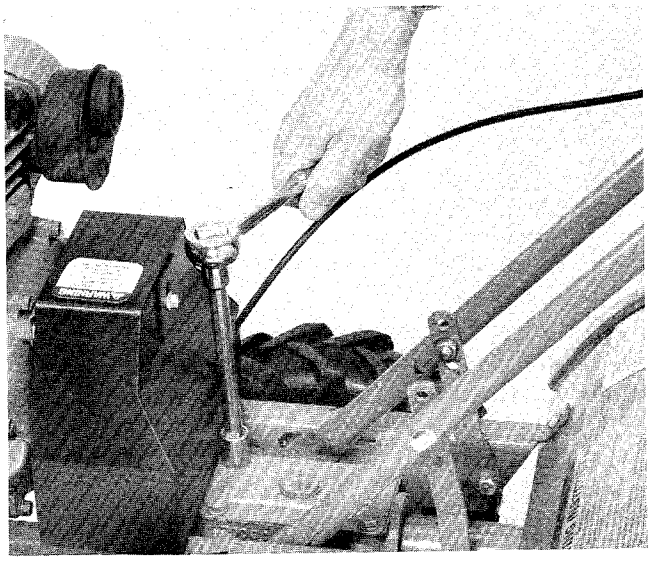


Photo 5-7: Removing the Front Cover.

5. Set the left hand axle down into a drain pan and slowly tilt the tiller to the left so that the oil drains from the transmission into the drain pan.

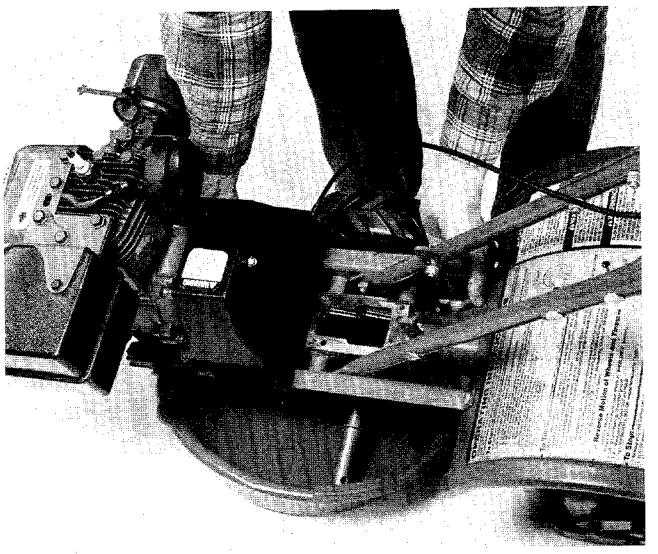


Photo 5-8: Draining the Gear Oil.

6. After all the oil is drained from the transmission, tip the tiller upright and reinstall the left hand wheel.
7. Use a new transmission cover gasket and reinstall the transmission cover to the front of the transmission. Evenly tighten the four bolts that hold the transmission cover in place.
8. Add SAE 140 or SAE 85W-140 weight transmission gear oil with an API rating of GL-3 to the transmission. Frequently check the gear oil level.
9. Add engine oil to the engine.

Checking for Oil Leaks

Regularly check your tiller for oil leaks from both the engine and the transmission. A little seepage is nothing to be alarmed about. However, if your tiller is loosing a lot of oil, you should not operate it until you repair the leak.

Keep an eye on the area where you park your tiller. Watch for stains on the floor which would indicate that your tiller is leaking.

When you find the oil leak, first try tightening any bolts or screws that may have loosened and created the leak.

If you are not sure how much oil has been lost from your tiller, be sure to check its oil levels before operation. Also, while operating your tiller, very frequently check the oil levels to make sure that you don't let the oil levels become too low for safe operation.

Of course, if you have any problems with oil leaks, call our Technical Service Department for further assistance.

Air Cleaner Maintenance

Your tiller's engine is equipped with a replaceable dry-type paper filter. You should replace this paper filter at least once a year, or more frequently under dusty or dirty conditions.

Do not oil or attempt to clean this paper filter — simply replace it.

To remove the filter:

1. Loosen the two screws that secure the air cleaner cover to the base of the air cleaner.

2. Turn the cover slightly counterclockwise. Remove the cover and paper filter.

To change the filter:

1. Thoroughly clean the base of the air cleaner and the inside of the air cleaner cover.

2. Place the new paper filter into the cover.

3. Place the cover (with the filter inside it) on the base of the air cleaner. Align the two screw holes in the cover with the two screws in the base of the air cleaner.

4. Turn the cover slightly clockwise and then tighten the two screws.

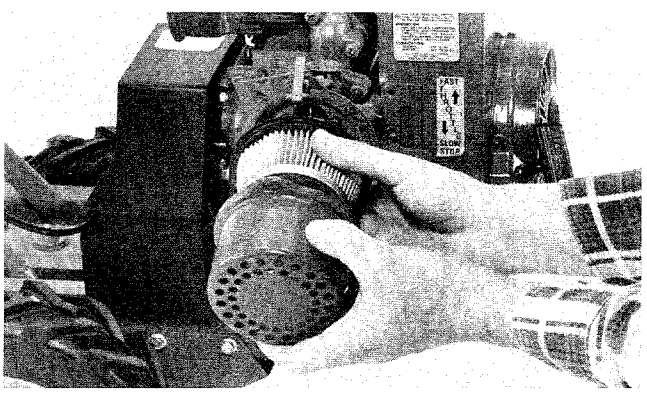


Photo 5-9: The Engine Air Filter.

Engine Cooling System Maintenance

Frequently inspect the engine's cooling fins, shrouds, and throttle linkage for a build-up of dirt, dried weeds, etc.

Always keep these areas free from debris in order to keep the cooling air flowing properly.

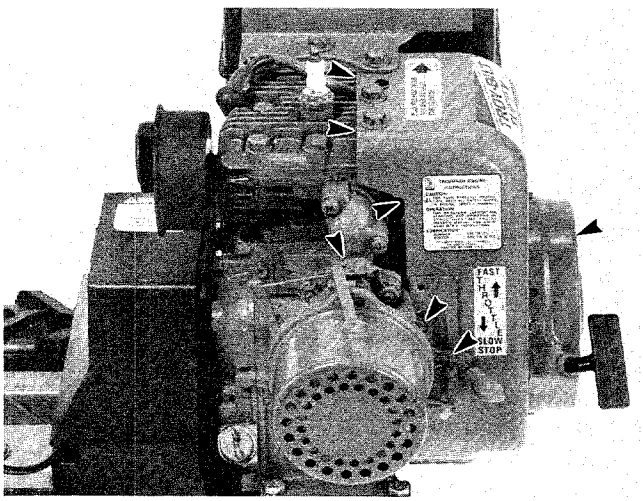


Photo 5-10: Keep These Areas Free of Debris.

Engine Ignition System Maintenance

Your tiller's engine has a dependable, maintenance-free electronic ignition system. This system has no condenser or points. This means that you don't have to give your engine a yearly tune-up. This system also assures you that the engine won't go off-tune and make starting difficult.

The only ignition system maintenance you'll need to perform is cleaning and re-gapping (or simply replacing) the spark plug. See the following instructions.

Spark Plug Maintenance

You should check your engine's spark plug periodically. Clean the area around the spark plug before removing it so that you won't accidentally knock debris into the spark plug hole.

Wait for the engine to cool, disconnect the spark plug wire from the spark plug, and use a 13/16" spark plug socket to remove the plug. Clean any deposits off the plug by carefully scraping it clean. Do not sandblast it or wire brush it to remove these deposits. After cleaning, check the electrode gap to make sure that it is set at 0.030 inch. Reinstall the spark plug, torquing it to 15 foot-pounds. If you would rather do so, you can simply replace the old spark plug with a new one.

You should replace the spark plug with a new one if the electrodes are pitted or burned or if the porcelain is cracked. When replacing the plug, use a Champion J-8C, J-8, or Autolite 356 (or equivalent). If your tiller's engine was originally equipped with a Champion RJ-17LM spark plug, replace it only with this type of plug.

Carburetor Adjustments

Your carburetor has been set at the factory for best tiller performance. If you feel that your carburetor needs adjustment, please contact the nearest authorized Tecumseh Service Outlet.

Tightening Nuts, Bolts, and Screws

⚠ WARNING

Before tightening any nuts, bolts, or screws on your tiller, turn the engine off, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

After the first two hours of tiller operation, check all fasteners (nuts, bolts, screws, etc.) and tighten any that may have loosened. After this initial check, you should check all fasteners for tightness every ten hours of tiller operation.

Most of the fasteners on your tiller are in plain view, however the following fasteners are not readily visible. Be sure to check them for tightness also.

1. Rear end cap bolts — these three bolts are located on the rear end of the tiller's transmission. You'll have to lift up the hood flap to see them.
2. Rear transmission housing cover bolts — these four bolts are located on the top of the rear end of the tiller's transmission. You'll notice them when you lift up the hood flap.

Bolo Tines

As you use your tiller, its tines continually contact earth and stones. This will gradually wear the tines down and they will become shorter, narrower, and pointed. When the tines become very worn, they will not do as effective a job tilling, chopping, and burying organic matter.

Check the tines occasionally. If they become too worn, replace them.

Removing and Installing the Tine Assemblies

⚠ WARNING

Before removing or installing a tine assembly, stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

1. Use a 9/16" socket, 6" extension, ratchet, and a 9/16" box end wrench to loosen the nut and bolt that secures the tine holder to the tine shaft.

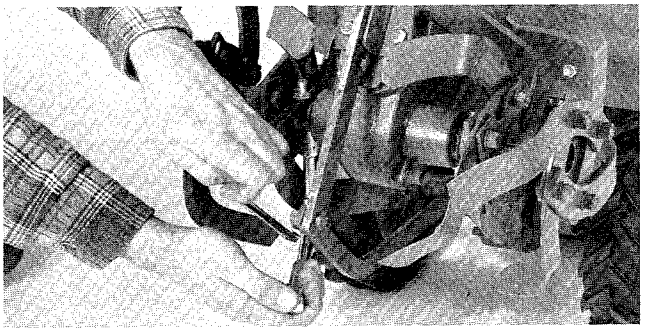


Photo 5-11: Removing the Tine Assembly.

2. Use a rubber mallet to gently tap the tine assembly loose from the tine shaft.
3. Slide the tine assembly off the tine holder.
4. Repeat steps **1, 2,** and **3** to remove the other tine assembly.
5. Installing the tine assembly is the reverse of its removal. Be sure to remove any rust, rough spots, or burrs from the tine shaft. Use sandpaper to do this. Then grease the tine shaft before reinstalling the tine assembly (this makes future removal of the tine assemblies easier).

Removing Individual Tines

⚠ WARNING

Before removing any of the tines, stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

Use two 9/16" box end wrenches to remove the two bolts, nuts, and lockwashers that secure the tine to the holder. See Photo 5-12.

If the nuts are rusted, apply penetrating oil to the threaded end of the bolt and nut. Allow the oil to soak in several minutes before loosening the nut. Always use the wrenches to loosen the nut, not the bolt.

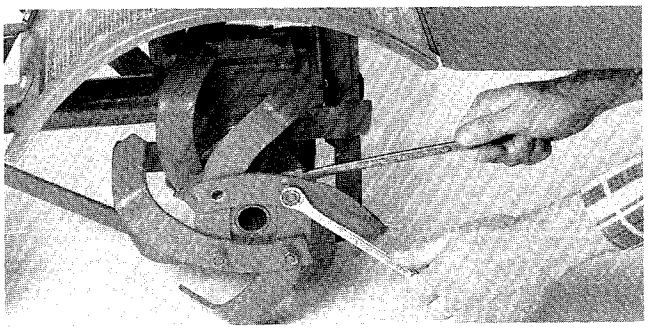


Photo 5-12: Removing a Single Bolo Tine.

Installing Tines

⚠ WARNING

Before installing the tines, stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

If you are installing tines, remember to install them in the reverse order from which you removed them.

Make sure that all tine tips are pointed inward, toward the transmission. Also make sure that the cutting (sharpened) edge of the tines will enter the soil first when the tines rotate.

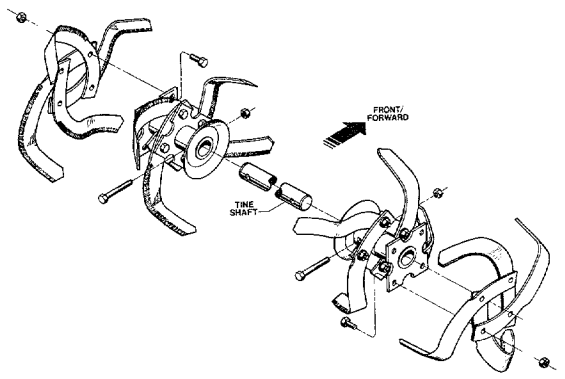


Figure 5-13: Location of Tines for Reinstallation.

Checking and Adjusting the Belt Tension

After the initial two hours of operation of your new tiller, check the belt tension. After this initial check, you should check the belt tension every 10 hours of operation.

The same is true after you've installed a new belt on your tiller: make an initial check the first two hours of operation and every ten hours of operation thereafter.

If you notice that the tiller's belt is slipping (the tines and wheels don't turn as fast as they used to, or they may even stop turning even though the engine is running at top speed), perform this belt tension check to see if the belt tension needs to be tightened. If you find that you can't bring the Forward Clutch Bail all the way up to the bottom of the upper handlebars, you will need to loosen the belt tension.

⚠ WARNING

Before checking the belt tension, stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

1. Lift the Forward Clutch Bail up and hold it to the bottom of the upper handlebars.
2. Place a ruler by the clutch bail spring and measure the length of it. See Photo 5-14.
3. If the belt tension is correct, the length of the spring should be 1⅞".
4. If the spring is too short, the belt tension will be too loose. If the spring is too long, the belt tension will be too tight.
5. To adjust the length of the spring, release the Forward Clutch Bail. Screw the adjuster counterclockwise (as viewed from the operator's position) to increase the length of the spring or clockwise (as viewed from the operator's position) to decrease the length of the spring.

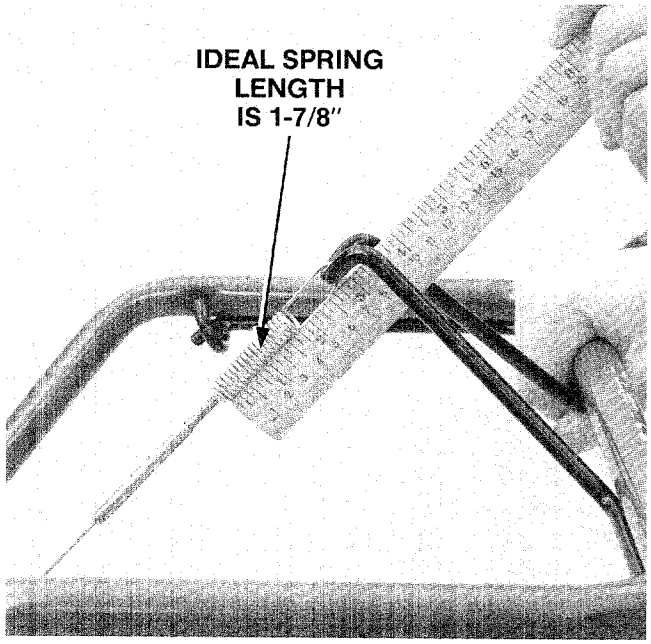


Photo 5-14: Measuring the Clutch Bail Spring (Belt Tension Check).

NOTE

If you have difficulty turning the adjuster by hand, you can have an assistant hold the Forward Clutch Bail to the handlebars while you insert a flat-tipped screwdriver into the clutch bail spring. Engage the tip of the screwdriver with the slot in the screw head that is inside the clutch bail spring. While you turn the screw, keep the Forward Clutch cable from turning by gripping the adjuster on its upper end with a pair of pliers. See Photo 5-14A.

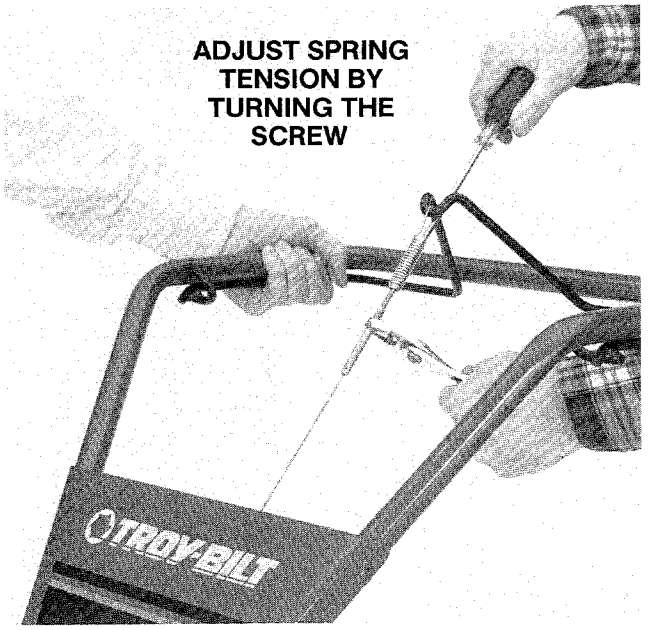


Photo 5-14A: Adjusting the Length of the Clutch Bail Spring.

Belt Removal and Replacement

⚠WARNING

Before removing or replacing the belt, shut the engine off, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

To remove the belt:

1. Use a ⅜" wrench to remove the bolt that attaches the belt cover to the tiller. Slide the belt cover up the cable slightly so that it is out of the way. See Photo 5-15.

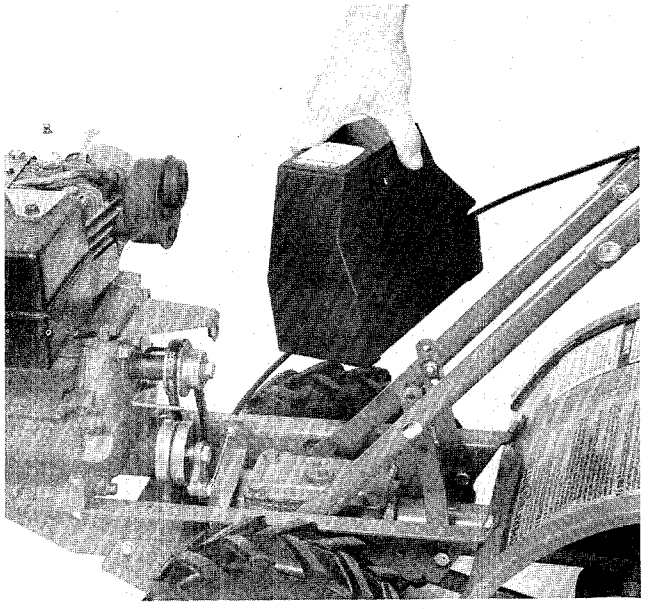


Photo 5-15: Removing the Belt Cover.

2. Push down on the upper section of the belt to give yourself some slack in the belt when you move the belt off the transmission pulley. Reach underneath the tiller and move the belt forward, off the transmission pulley.

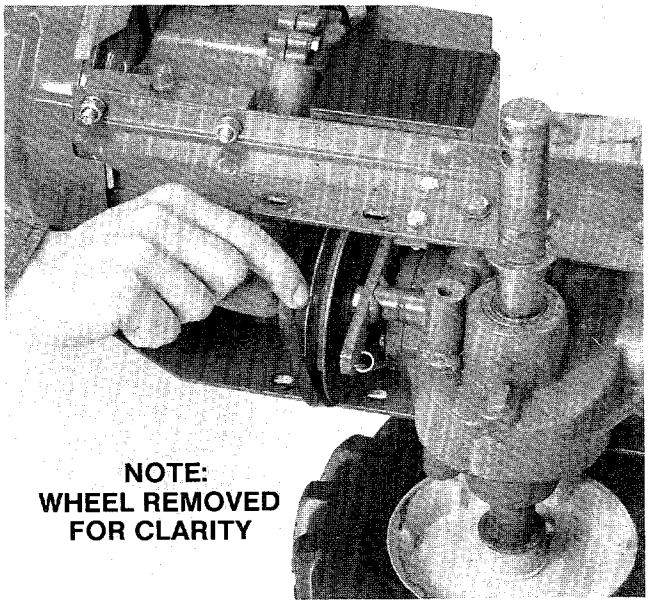


Photo 5-16: Moving Belt Off the Transmission Pulley.

3. From above, lift the belt up, off the engine pulley. You'll have to guide the lower portion of the belt as you're removing it so that it won't hang up on anything.

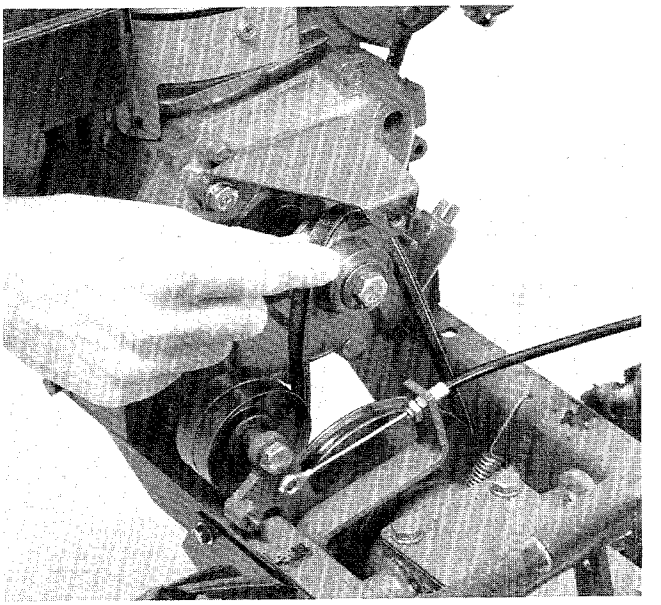


Photo 5-17: Moving Belt Off the Engine Pulley.

To install the belt:

1. Insert the belt down, in back of the engine pulley and in front of the transmission.

2. Work the belt over the transmission pulley. Make sure that the belt goes in the groove in the transmission pulley.

3. Loop the upper section of the belt around the engine pulley. Make sure that the belt goes in the groove in the engine pulley. Also make sure that the belt goes between the engine pulley and the wire belt guide on each side of the pulley.

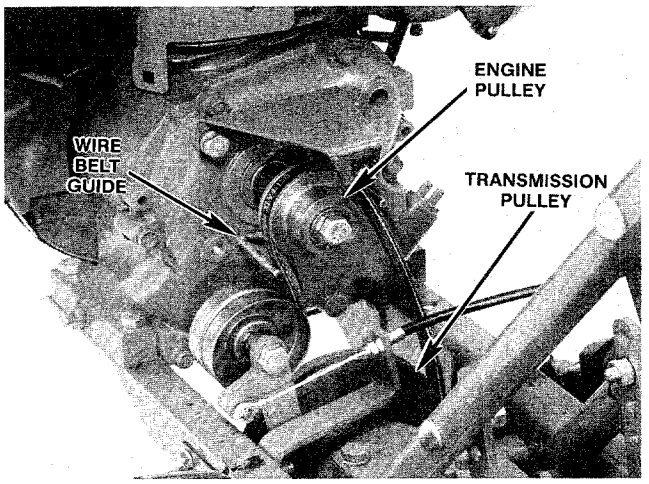


Photo 5-18: The Installed Drive Belt.

4. Slide the belt cover down the Forward Clutch cable and reinstall it on the tiller.
5. Check the belt tension. See "Checking and Adjusting the Belt Tension" for specific instructions.

NOTE

If you've installed a new belt, remember to check and readjust its tension after the first 2 hours of operation.

Forward Clutch (Bail) Adjustment

See "Checking and Adjusting the Belt Tension" in this Section. When you have the correct amount of tension on the belt, your Forward Clutch mechanism should be properly adjusted.

If, after adjusting the belt tension, the Forward Clutch mechanism does not operate correctly, please contact our Technical Services Department for further instructions. Their telephone numbers are listed on Page 3 and on the back cover of this Manual.

Removing and Installing the Forward Clutch Cable

⚠ WARNING

Before removing or installing the Forward Clutch cable, stop the engine, allow it to cool, disconnect the spark plug wire and prevent it from touching the spark plug.

Failure to do so could result in personal injury or property damage.

To remove the Forward Clutch cable:

1. Unhook the spring that is on the upper end of the Forward Clutch Cable from the Forward Clutch Bail.
2. Use a 3/8" wrench to remove the bolt that attaches the belt cover to the tiller. Slide the belt cover up the cable so that it is out of the way.
3. Use a pair of needle nose pliers to carefully remove the klipring from the clevis pin on the idler lever. See Photo 5-19.

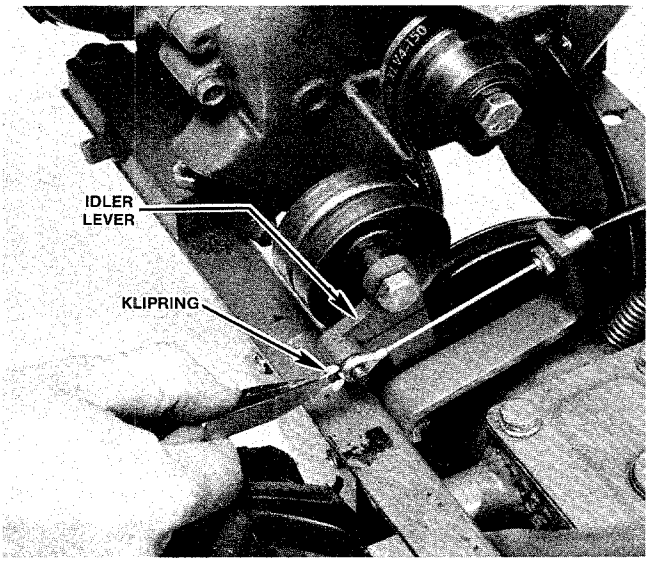


Photo 5-19: Removing the Klipring.

4. Use one 7/16" and one 3/8" open end wrench to loosen the locknut on the lower end of the Forward Clutch cable sheath where it attaches to the cable mounting bracket.

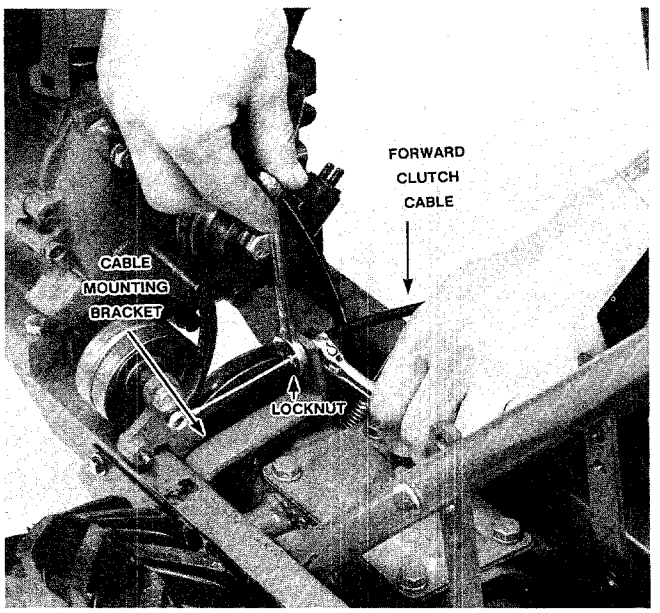


Photo 5-20: Loosening the Forward Clutch Cable.

5. Push the Forward Clutch cable forward to free it from the cable mounting bracket.

6. Pull downward on the upper end of the Forward Clutch cable sheath where the connector fits into the cable bracket on the upper end of the lower handlebar. Guide the cable out of the slot in the cable bracket. See Photo 5-21.

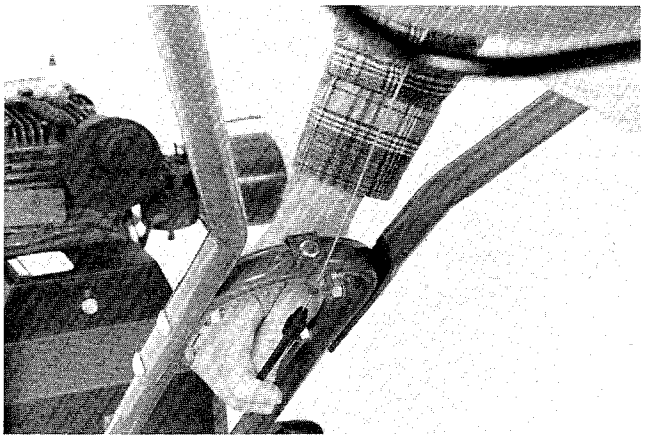


Photo 5-21: Removing the Forward Clutch Cable from the Cable Bracket.

To install the Forward Clutch cable:

1. Place the lower end of the Forward Clutch cable into the cable mounting bracket and use one 7/16" and one 3/8" open end wrench to securely fasten it to the cable mounting bracket. See Photo 5-20.

2. Place the lower end of the Forward Clutch cable over the clevis pin on the left hand side of the idler lever. See Photo 5-22.

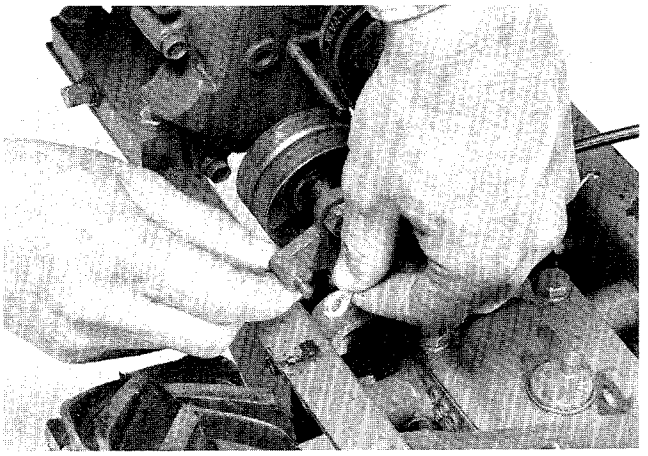


Photo 5-22: Installing the Lower End of the Forward Clutch Cable.

3. Use a pair of needle nose plier to place the klipring onto the clevis pin. See Photo 5-19.

4. Hook the spring on the upper end of the Forward Clutch cable to the Forward Clutch Bail.

5. Pull downward on the upper end of the black cable sheath. Slide the Forward Clutch Cable into the slot in the cable bracket that is on the upper end of the lower handlebar. Center the connector on the upper end of the cable sheath in the hole in the cable bracket and push the connector into the hole until it snaps in place. See Photo 5-21.

Tiller Storage

Whenever you plan to not use your tiller for 30 days or longer, you should perform the following steps to make sure that it will start when you remove it from storage.

⚠ DANGER

Gasoline is highly flammable and its vapors are explosive. Follow these safety practices to prevent injury or property damage from fire or explosion.

a. Allow the engine and muffler to cool at least 2 minutes before draining fuel tank.
b. Do not allow open flames, sparks, matches, or smoking in the area.
c. Wipe up any spills and push the tiller away from spilled fuel.
d. Use only an approved gasoline container and store it safely out of the reach of children.
e. Do not store gasoline in an area where its vapors could reach an open flame or spark, or where ignition sources are present (such as hot water and space heaters, furnaces, clothes dryers, stoves, electric motors, etc.).

1. To prevent harmful gum deposits from forming in the engine's fuel tank or carburetor, the gasoline should be removed or treated with a fuel stabilizer (such as STA-BIL). Refer to the "STORAGE" instructions in your Tecumseh Engine Owner's Manual for specific instructions.

NOTE:

If "Gasohol" has been used in the engine, refer to your Tecumseh Engine Owner's Manual for specific instructions.

2. Change the engine oil while the engine is still warm. See "Changing Engine Oil" in this section for specific instructions.

3. Clean any debris off the tiller.

4. Lubricate the tiller. See "Lubrication" in this section for specific instructions.

5. Store tiller indoors in a cool, dry environment.

6. Remember, the end of the season is a good time to order any parts that you may need to keep your tiller in top shape for next spring.

RECOMMENDED MAINTENANCE INTERVALS

Maintenance Required	Before Each Use	Every 10 Hours	Every 30 Hours	Every 50 Hours
Check Engine Oil Level* **	X			
Clean Engine Cooling Fins	X			
Check Bolts, Nuts & Screws for Tightness**		X		
Change Engine Oil***		X		
Check Tension on Drive Belt**		X		
Lubricate Tiller		X		
Check Transmission Gear Oil Level**			X	
Check Tines for Wear			X	
Check, Clean, and Readjust Spark Plug Gap (or simply replace spark plug)				X
Replace Paper Air Filter Cartridge***				X

*When operating your tiller, check the oil level every 5 operating hours.

**Check after the first two hours of engine break-in operation.

***Change more frequently in extremely dusty or dirty conditions. (Change engine oil after the first two hours of break-in operation.)

TILLER

Height

Without Handlebars ..... 21¼"

With Handlebars in Low Position ..... 37¾"

With Handlebars in High Position ..... 46¼"

Length

With Handlebars in Low Position ..... 53½"

Without Handlebars ..... 36¼"

Width

Hood Width ..... 15¼"

Tilling Width ..... 14"

Wheel Width ..... 13⅝" - 14¾"

Width at top of Handlebars ..... 18"

Weight ..... 117 pounds (with oil/no gas)

Transmission Gear Oil Type

Small Top Offs: SAE 140, SAE 85W-140, or SAE 80W-90 weight gear oil with an API rating of either GL-3 or GL-5.

Full Replacement: SAE 140 or SAE 85W-140 weight gear oil with an API rating of GL-3 only.

ENGINE

Type

Tecumseh 3 horsepower, single cylinder, air cooled, horizontal crankshaft, manual choke, solid state ignition.

Fuel Tank Capacity: 2 Quarts

Fuel

Unleaded Regular Gasoline
(Leaded regular gasoline is an acceptable substitute.)

Engine Oil Capacity

Approximately 21 ounces (1¼ pints)
(However, always make sure oil level is at overflow point on oil filler tube to be sure oil level is correct.)

Engine Oil Type

Above 32° F ..... SAE 30

DO NOT USE 10W40 OIL!

Below 32° F ..... SAE 5W30

Spark Plug

Champion J-8 or J-8C or Autolite 356 (or equivalent)

Canadian Models: Champion RJ-17LM

Spark Plug Gap: 0.030 inch

Ignition System

Solid State Electronic Ignition
(No points or condenser)

INDEX

A

Air Cleaner 25
Assembly Steps 6-9
Authorized Service,
Engine 3

B

Bail, Forward Clutch 11
Belt
Adjusting 27
Replacing 28
Tension Check 27
Bolo Tines 26
Break-in Operation 14

C

Cable, Forward Clutch 29
Carburetor Adjustments 26
Choke, Engine 13
Claims, Freight 1
Composting, Power 18
Cooling System Maintenance,
Engine 25
Controls,
Tiller & Engine 10
Crop Residues 18
Cultivating 17

D

Decals 5
Depth Regulator Lever 11
Depths, Tilling 16
Drive Belt (See "Belt")

E

Engine
Air Cleaner 25
Choke Lever 13
Cooling System
Maintenance 25
Controls 12-13
Fuel 32
Oil 32
Recoil Starter 13
Serial Number 3
Service Outlets 3
Spark Plug 25, 32
Starting 14
Stopping 12
Storage 5, 30
Throttle Lever 12

F

Fins, Engine Cooling 25
Footprints 17
Forward Clutch Bail 11
Frame Weights 18
Freight Damage 1
Fuel 32

G

Gardening 16
Gasoline 32
Gear Oil, Transmission 32
Grease
Lubrication Points 21-22

H

Handlebars
Height Adjustment 12
Hillside Tilling 19

I

Ignition System,
Engine 25

J, K

L

Leaks, Oil 25
Loading 20
Lubrication Points 21-22

M

Maintenance 5,21
Maintenance Intervals,
Recommended 31
Motor Oil (See "Oil, Engine")

N

O

Off-Season Storage 5, 30
Oil, Engine
Adding 22
Changing 22-23
Checking Oil Level 22
Type 32
Oil, Transmission Gear
Adding 23-24
Changing 24
Checking Oil Level 23
Type 32
Oil Leaks 25
Operating the Tiller 4, 14
Ordering Tiller Parts 3

P

Pins, Wheel Drive 10
Power Composting 18
Pre-start Checklist 14

Q

R

Reverse
Moving Tiller Rearward .. 15
Repairs and
Adjustments 21-30

S

Safety Instructions 4-5
Seedbed Preparation 17
Serial Numbers
Tiller 2
Engine 3
Sloping Ground 19
Spark Plug 25, 32
Specifications,
Tiller & Engine 32
Starting & Stopping
Engine 14-15
Stopping Tiller 15
Storage 5, 30

T

Terrace Gardening 19
Throttle Lever,
Engine 12
Tightening Fasteners 26
Tiller & Engine
Maintenance 21
Tiller Operation 14-20
Tiller Serial Number 2
Tines, Bolo 26
Travel Position,
Depth Regulator Lever ... 11
Turning Tiller Around 16

U

Unloading 20
Untangling Tines 18
Uphill Tilling 19

V

W

Weights, Frame 18
Wheel Drive Pins 10

X, Y, Z

FULL NO-TIME-LIMIT WARRANTY

Your TROY-BILT® Roto Tiller - Power Composter is warranted by Garden Way Incorporated to be free from defects in materials and workmanship. This warranty will remain in effect for the life of the machine and will be transferred automatically to any and all subsequent owners.

We or your authorized dealer will repair or replace, at no cost to you, any part we find to be defective with the exception of the engine, which is warranted separately by the engine manufacturer. Garden Way Incorporated does, however, extend the length of the engine manufacturer's warranty, providing you with coverage for a total of three (3) years. (Call or write to us for a FREE copy of the engine warranty.)

This FULL NO-TIME-LIMIT WARRANTY also applies to all non-powered attachments. Powered attachments are warranted separately by their manufacturers.

If we determine them defective, even parts that wear in normal use, such as belts, bearings, blades, tires, and tines are covered under this warranty and will be replaced or repaired without charge. Failures or malfunctions caused by normal wear and tear, use of unauthorized accessories or attachments, misuse, or accident are not covered.

FULL ONE-YEAR COMMERCIAL USE WARRANTY: If used for commercial, institutional, industrial, rental, or demonstrator purposes, the warranty on this product is limited in duration to one (1) year from date of purchase. The engine warranty for commercial use is a LIMITED WARRANTY also in effect for one (1) year from date of purchase. Proof of purchase is required to obtain commercial warranty service.

How to Get Service: To obtain warranty service, contact Garden Way Incorporated at 102nd Street & 9th Avenue, Troy, NY 12180, or call us TOLL FREE at 1-800-520-5520, or consult your Yellow Pages for the name of the authorized TROY-BILT product dealer nearest you.

Your Rights Under State Law: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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TROY-BILT® AT-HOME TRIAL POLICY

If for any reason you are not completely satisfied with your TROY-BILT® Tiller within 30 days from the time you receive it, notify us and return it for a refund of your purchase price.

TROY-BILT